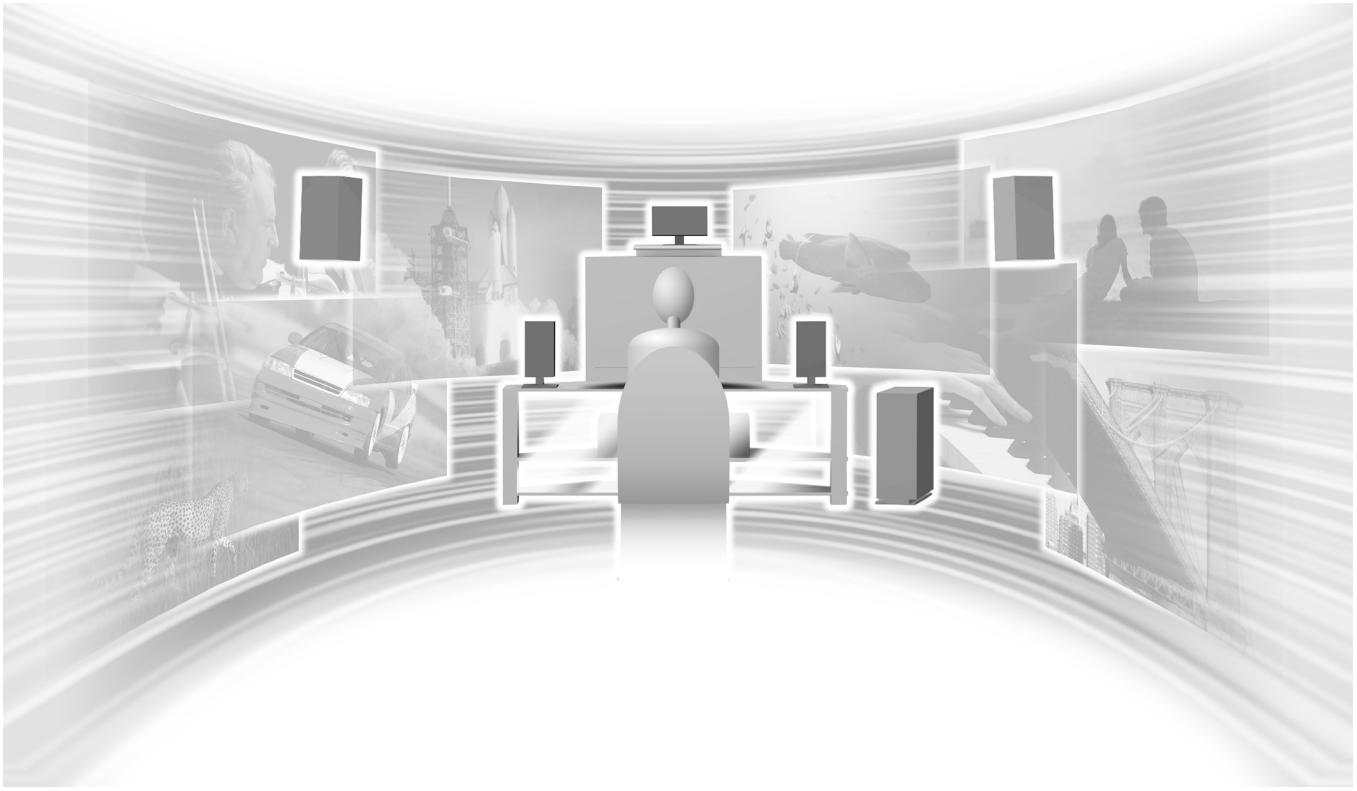
Panasonic

DVD Home Theater Sound System

Operating Instructions

Model No. **SC-HT650**



Before connecting, operating or adjusting this product, please read these instructions completely.
Please keep this manual for future reference.

Region number supported by this player

Region numbers are allocated to DVD players and software according to where they are sold.

- The region number of this player is "**1**".
- The player will play DVD-Video marked with labels containing "**1**" or "**ALL**".

Example:

As an ENERGY STAR® Partner, Panasonic has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

The warranty can be found on page 39.

Dear customer

Thank you for purchasing this product.
For optimum performance and safety, please read these instructions carefully.

Operations in these instructions are described mainly with the remote control, but you can do the operations on the main unit if the controls are the same.

System	SC-HT650
Main unit	SA-HT650
Front and Surround speakers	SB-AFC650
Center speaker	SB-PC650
Subwoofer	SB-W650

CAUTION!

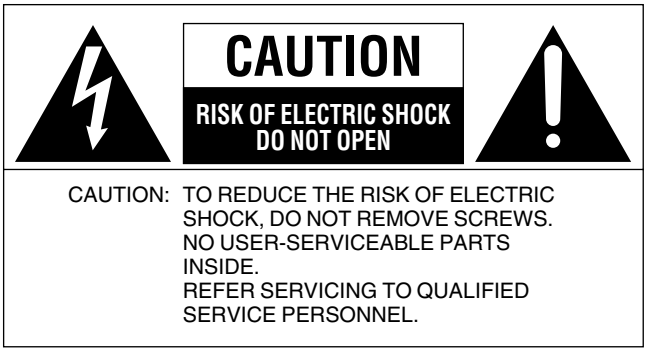
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR PRODUCT DAMAGE, DO NOT EXPOSE THIS APPARATUS TO RAIN, MOISTURE, DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHALL BE PLACED ON THE APPARATUS.

CAUTION!

DO NOT INSTALL OR PLACE THIS UNIT IN A BOOKCASE, BUILT-IN CABINET OR IN ANOTHER CONFINED SPACE. ENSURE THE UNIT IS WELL VENTILATED. TO PREVENT RISK OF ELECTRIC SHOCK OR FIRE HAZARD DUE TO OVERHEATING, ENSURE THAT CURTAINS AND ANY OTHER MATERIALS DO NOT OBSTRUCT THE VENTILATION VENTS.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CAUTION – LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM. FDA 21 CFR / Class II
CAUTION – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM. IEC60825-1 / Class 3b
VARNING – SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL – SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
ADVARSEL – SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRÅLEN.
VARO! AVATTAESSA OLET ALTTIINA NÄKYVÄÄ JA NÄKYMÄTÖN LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VORSICHT – SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENTION – RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
注意 – 打开时有可见及不可见激光辐射，避免激光束照射。
注意 – ここを開くと可視及び不可視レーザー光が出ます。ビームを見たり、触れたりしないで下さい。 RQLXS0054

(Inside of product)

CAUTION:

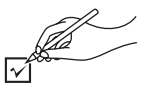
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any unauthorized changes or modifications to this equipment would void the user’s authority to operate this device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

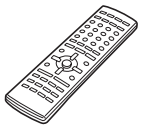
Accessories



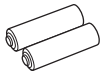
Please check and identify the supplied accessories. Use numbers indicated in parentheses when asking for replacement parts.

To order accessories contact 1-800-332-5368 or the website (http://www.panasonic.com).

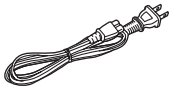
☐ **1 Remote control**
(EUR7623XD0)



☐ **2 Batteries**
for remote control

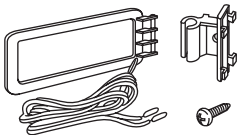


☐ **1 AC power supply cord**
(RJA0065-1D)



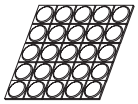
☐ **1 Video cable**
(RJL1P016B15A)

☐ **1 AM loop antenna set**
(RSA0012-L)

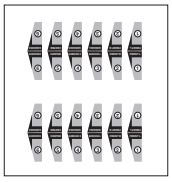


☐ **1 FM indoor antenna**
(RSA0006-J)

☐ **1 Sheet of speaker feet**
(RFA0631A-K)
Replacements sold in sets of 4.



☐ **1 Sheet of speaker-cord stickers**
(12 stickers)
One set is extra.
The sheet cannot be purchased separately.



Note
The included AC power supply cord is for use with this unit only. Do not use it with other equipment.

User memo:

DATE OF PURCHASE _____
DEALER NAME _____
DEALER ADDRESS _____
_____
TELEPHONE NUMBER _____

The model number and serial number of this product can be found on either the back or the bottom of the unit.
Please note them in the space provided below and keep for future reference.

MODEL NUMBER SC-HT650

SERIAL NUMBER _____

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IMPORTANT SAFETY INSTRUCTIONS

Read these operating instructions carefully before using the unit. Follow the safety instructions on the unit and the safety precautions listed below. Keep these operating instructions handy for future reference.

Safety

1. **Power source**—Connect the unit to a power source of the type described in these instructions or as marked on the unit.
2. **Polarization**—The unit is equipped with a polarized power plug where one blade is wider than the other. This safety feature ensures that the plug fits into your household AC outlet only one way. If the plug doesn't fit one way, try reversing it. If the plug still doesn't fit, contact an electrician to replace the obsolete outlet. Do not attempt to defeat the safety purpose of the plug.
3. **Power cord protection**—Route the AC power supply cord so that it will not be walked on or pinched by items placed on or against it. Never take hold of the plug or cord with wet hands. Always grasp the plug body firmly when connecting and disconnecting it.
4. **Overloading**—When connecting the AC power supply cord, be careful not to overload the household AC outlet, extension cord, or outlet from any other device as this can result in fire or electric shock.
5. **Nonuse periods**—Turn the unit off when it is not in use. Unplug the unit from the household AC outlet if it is not to be used for a long time. Unplug the unit during lightning storms.
6. **Attachments and accessories**—Use only the attachments and accessories recommended in these operating instructions.

Installation

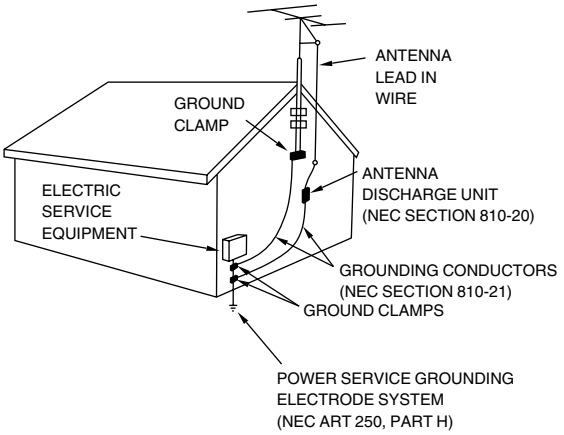
Placement

1. **Ventilation**—Situate the unit so that it receives proper ventilation. Do not install in a confined space such as a bookcase or cabinet. Allow at least 10 cm (4 inches) clearance from the rear of the unit. To prevent the risk of electric shock or fire due to overheating ensure curtains and other materials do not obstruct the unit's ventilation.
2. **Foreign material**—Ensure objects and liquids do not get into the unit. Avoid exposing the unit to excessive smoke, dust, mechanical vibration, and shock.
3. **Magnetism**—Situate the unit away from equipment and devices that generate strong magnetic fields.
4. **Stacking**—Do not place heavy objects on top of this unit.
5. **Surface**—Place the unit on a flat, level surface.
6. **Carts and stands**—Use the unit only with carts and stands recommended by the manufacturer. Move carts with care. Sudden stops, excessive force, and uneven surfaces can cause carts to overturn.

7. **Wall and ceiling mounting**—Do not mount the unit on walls or ceilings unless specified in the instructions.

Environment

1. **Water and moisture**—Do not use the unit near water, such as near a bathtub or swimming pool. Avoid damp basements.
2. **Heat**—Situate the unit away from heat sources, such as radiators.
   Do not situate where temperatures fall below 5°C (41°F) or rise above 35°C (95°F).
3. **Power lines**—Take care when setting up an outdoor antenna that it is not near overhead power lines, electric lights, or electrical circuits, and that there is no danger of the antenna falling on power lines, electric lights, or electrical circuits. When installing an outdoor antenna, take extreme care not to touch such power lines or circuits, as contact with them can be fatal.
4. **Outdoor antenna grounding**—If you connect an outdoor antenna, ground the antenna system to protect against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1990, provides information about grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. Refer to this diagram.



NEC—NATIONAL ELECTRICAL CODE

Maintenance

(See page 35 for details.)

Unplug the unit from the household AC outlet before cleaning.
Clean with a damp cloth.
Do not use abrasive pads, scouring powders, or solvents.

Service

1. **Damage requiring service**—The unit should be serviced by qualified service personnel if:
   (a)The AC power supply cord or the plug has been damaged; or
   (b)Objects or liquids have gotten into the unit; or
   (c)The unit has been exposed to rain; or
   (d)The unit does not operate normally or exhibits a marked change in performance; or
   (e)The unit has been dropped or the cabinet damaged.
2. **Servicing**—Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.
3. **Replacement parts**—When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.
4. **Safety check**—After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

■ Discs that can be played

Disc type	Logo	Indication used in instructions
DVD-RAM	DVD RAM RAM4.7	RAM
DVD-Audio	DVD AUDIO	DVD-A
DVD-Video	DVD VIDEO DVD VIDEO	DVD-V
DVD-R	DVD R R4.7	
Video CD	COMPACT disc DIGITAL VIDEO COMPACT disc SUPER VIDEO	VCD Including SVCD (Confirming to IEC62107)
CD	COMPACT disc DIGITAL AUDIO COMPACT disc DIGITAL AUDIO TEXT	CD Including CD text
CD-R/RW	—	WMA MP3 JPEG

- Use discs with the above logos and that conform to specifications. The unit cannot play other discs correctly.
- Do not use irregularly shaped discs (e.g. heart-shaped), as these can damage the unit.

■ Discs that cannot be played

PAL discs (except DVD-Audio), DVD-ROM, CD-ROM, CDV, CD-G, +RW, DVD-RW, SACD, Divx Video Discs, Photo CD and "Chaoji VCD" available on the market including CVD, DVCD and SVCD that do not conform to IEC62107.

■ Disc structure

Disc structure and the labels given to the items on discs depend on the disc type.

Track: the smallest division on DVD-Audio, CDs and Video CDs, or a single WMA/MP3 file.
Chapter: the smallest division on DVD-Video.
Group: collections of tracks on DVD-Audio and equivalent to folders or albums on data discs.
Title: the largest division on DVD-Video, usually an entire movie.
Program: the division on DVD-RAM equivalent to a single recording.
Picture: a single JPEG file.
Play list: the largest grouping on a HighMAT disc, or a group of scenes on DVD-RAM.
Scene: DVD-RAM program sections specified and grouped into play lists on a DVD video recorder.
Content: covers tracks and pictures on HighMAT discs.

Playing DVDs and Video CDs

The producer of these discs can control how they are played so you may not always be able to control play as described in these operating instructions (for example if the play time is not displayed or if a Video CD has menus). Read the disc's instructions carefully.

■ DVD-RAM discs

DVD-RAM discs must meet the following conditions for this unit to be able to play them.

Type	●Non-cartridge discs ●Discs that can be removed from their cartridges (TYPE 2 and 4)
Capacity	●12 cm (5″) 9.4 GB (double-sided) and 4.7 GB (single-sided) ●8 cm (3″) 2.8 GB (double-sided)
Recording format	Discs recorded with DVD video recorders, DVD video cameras, personal computers, etc., using Version 1.1 of the Video Recording Format (a unified video recording standard).

- Remove TYPE 2 and 4 discs from their cartridges before use, then return them when you are finished. Read the instructions for the disc carefully.
- Do not allow the disc to become dirty or scratched. Store discs in their cartridges and ensure the disc label and cartridge label face the same way.
- Some parts of the disc, for example where one program ends and another begins, may not play smoothly.

■ DVD-R discs

Panasonic DVD-R recorded and finalized on a Panasonic DVD video recorder are played as DVD-Video on this unit.

■ CD-R and CD-RW discs

This unit can play CD-R/RW (audio recording disc) recorded with CD-DA, video CD, SVCD (conforming to IEC62107), WMA, MP3 or JPEG. Close the sessions or finalize the disc after recording.

■ HighMAT discs

This unit is compatible with HighMAT discs containing WMA, MP3, and/or JPEG files.

Note

It may not be possible to play CD-R, CD-RW, DVD-R and DVD-RAM in all cases due to the type of disc or condition of the recording.

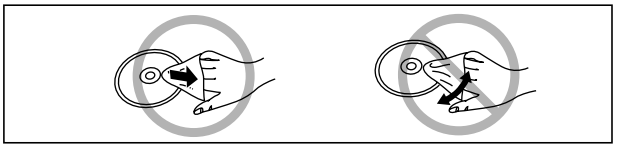
■ Playing PAL system DVD-Audio

This unit converts PAL to NTSC for play. The picture is compressed to show it in its entirety, but this may cause it to be stretched vertically.

■ To clean discs

DVD-Audio, DVD-Video, Video CD, CD

Wipe with a damp cloth and then wipe dry.



DVD-RAM, DVD-R

- Clean with an optional DVD-RAM/PD disc cleaner (LF-K200DCA1, where available).
- Never use cloths or cleaners for CDs etc.

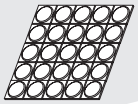
■ Handling precautions

- Do not write on the label side with a ball-point pen or other writing instrument.
- Do not use record cleaning sprays, benzine, thinner, static electricity prevention liquids or any other solvent.
- Do not attach labels or stickers to discs. (Do not use discs with exposed adhesive from tape or left over peeled-off stickers.)
- Do not use scratch-proof protectors or covers.
- Do not use discs printed with label printers available on the market.

Simple setup

STEP 1 Locating

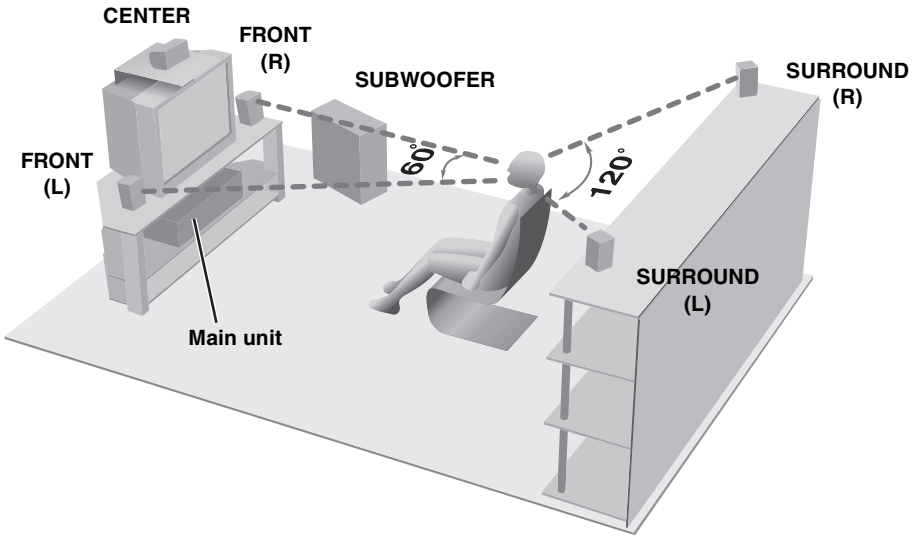
Sheet of speaker feet



Use only supplied speakers

Using other speakers can damage the unit and sound quality will be negatively affected.
Set the speakers up on an even surface to prevent them from falling. Take proper precautions to prevent the speakers from falling if you cannot set them up on an even surface.

Setup example



- The front and surround speakers are the same. The left and right speakers are the same.
- Place the front, center, and surround speakers at approximately the same distance from the seating position. The angles in the diagram are approximate.

Main unit

Note

Keep your speakers at least 10 mm ($^{13}/_{32}$″) away from the system for proper ventilation.

Center speaker

- You can also put this speaker directly under the television.
- Vibration caused by the center speaker can disrupt the picture if it is placed directly on the television. Put the center speaker on a rack or shelf.

Subwoofer

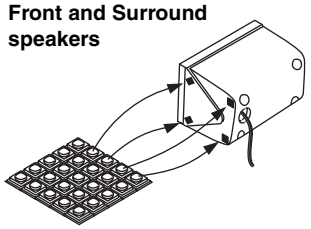
Place to the right of the television, on the floor or a sturdy shelf so that it won't cause vibration.
Leave 10 cm (4″) on the right for the woofer to be effective. Leave 10 cm (4″) at the rear for ventilation.

Attaching the speaker feet

Attach these speaker feet to prevent vibration causing the speakers to move or fall over.

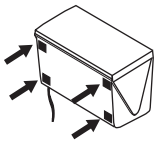
Standing

Front and Surround speakers



Laying down

Center speaker



Positioning for best effect

How you set up your speakers can affect the bass and the sound field. Note the following points.

- Place speakers on flat secure bases.
- Placing speakers too close to floors, walls, and corners can result in excessive bass. Cover walls and windows with thick curtain.

Notes on speaker use

- You can damage your speakers and shorten their useful life if you play sound at high levels over extended periods.
- Reduce the volume in the following cases to avoid damage.
  - –When playing distorted sound.
  - –When the speakers are receiving howling from a record player, noise from FM broadcasts, or continuous signals from an oscillator, test disc, or electronic instrument.
  - –When adjusting the sound quality.
  - –When turning the unit on or off.

If irregular coloring occurs on your television

These speakers are designed to be used close to a television, but the picture may be affected with some televisions and setup combinations.

If this occurs, turn the television off for about 30 minutes.

The television's demagnetizing function should correct the problem. If it persists, move the speakers further away from the television.

Caution

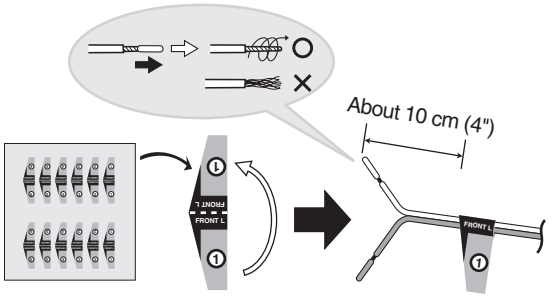
- **Use the speakers only with the recommended system. Failure to do so may lead to damage to the amplifier and/or the speakers, and may result in the risk of fire. Consult a qualified service person if damage has occurred or if you experience a sudden change in performance.**
- **Do not attempt to attach these speakers to walls using methods other than those described in this manual.**

STEP 2 Speakers

Sheet of speaker-cord stickers

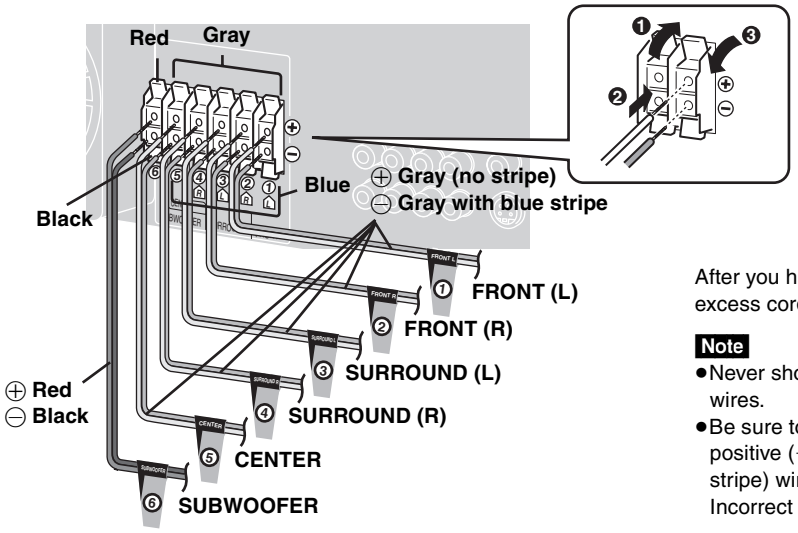
1 Attaching the stickers to the speaker cords

Attach the stickers to the speaker cords.
Attach the numbered stickers to the end of the speaker cords so the numbers match the positions of the speakers shown in the diagram.



2 Connecting the speakers

Connect the cords to the terminals of same color so the numbers on the stickers match the numbers under the terminals.



After you have completed setup and connection, wind the excess cord and keep together with string.

Note

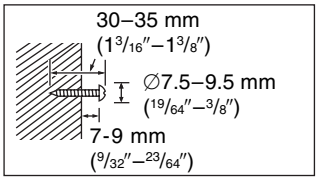
- Never short-circuit positive (+) and negative (−) speaker wires.
- Be sure to connect only positive (red or gray) wires to positive (+) terminals and negative (black or gray with blue stripe) wires to negative (−) terminals.
  Incorrect connection can damage the speakers.

Other speaker setup options

■ Attaching to a wall

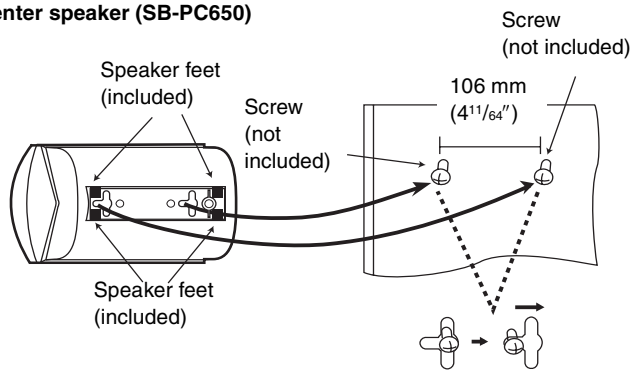
Attach four speaker feet to each speaker, ensuring they do not cover hole.

1 Screw a screw (not included) into the wall.



2 Fit the speaker securely onto the screw with the hole or holes.

Center speaker (SB-PC650)



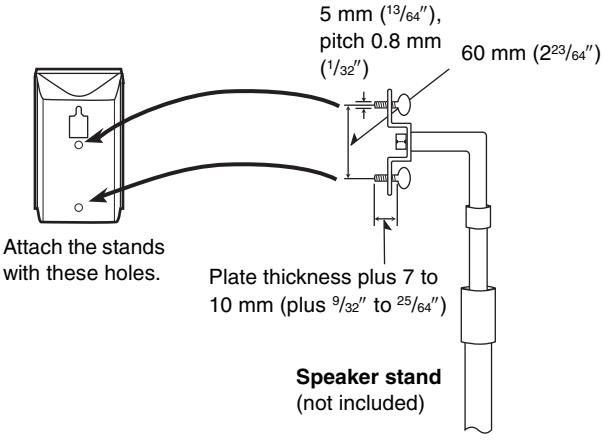
Front and Surround speakers (SB-AFC650)
The method for attaching speakers to a wall is the same except that there is only one bracket.

Note
The wall or pillar on which the speakers are to be attached should be capable of supporting 10 kg (22 lb.) for SB-PC650 and 5 kg (11 lb.) for SB-AFC650 per screw.

■ Fitting speaker stands (optional)

Preparation
Ensure the stands meet these conditions before purchasing them.

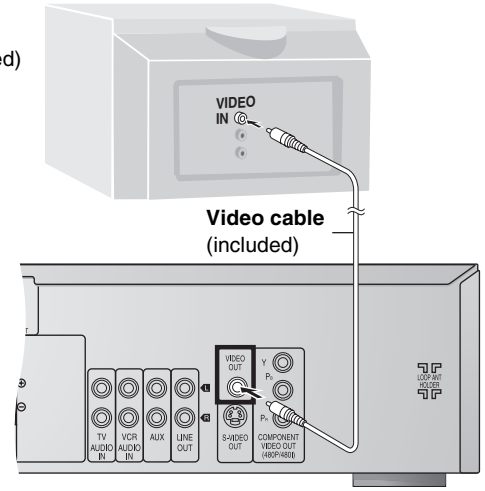
- Observe the diameter and length of the screws and the distance between screws as shown in the diagram.
- The stands must be able to support over 10 kg (22 lb.) for SB-PC 650 and 5 kg (11 lb.) for SB-AFC650.
- The stands must be stable even if the speakers are in a high position.



STEP 3 Television

Video cable

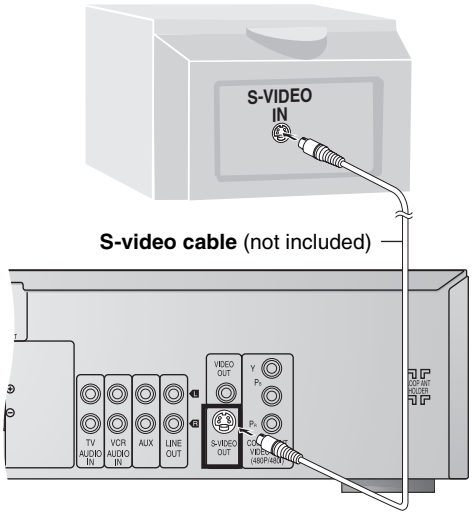
■ Connecting a television with a VIDEO IN terminal



Connect directly to your television

Do not connect the unit through a video cassette recorder, because the picture may not be played correctly due to the copy guard.

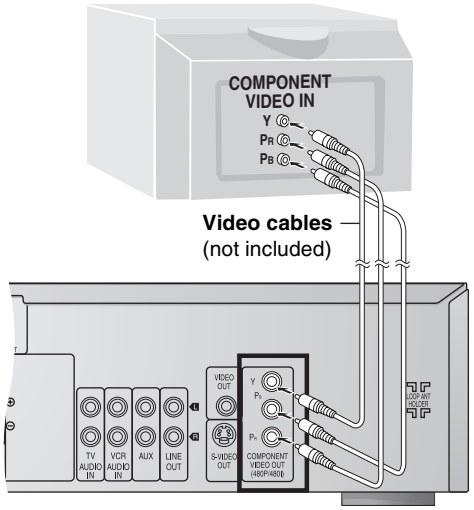
■ Connecting a television with an S-VIDEO IN terminal



S-VIDEO OUT terminal

The S video terminal achieves a more vivid picture than the VIDEO OUT terminal by separating the chrominance (C) and luminance (Y) signals. (Actual results depend on the television.)

■ Connecting a television with COMPONENT VIDEO IN terminals



COMPONENT VIDEO OUT terminals

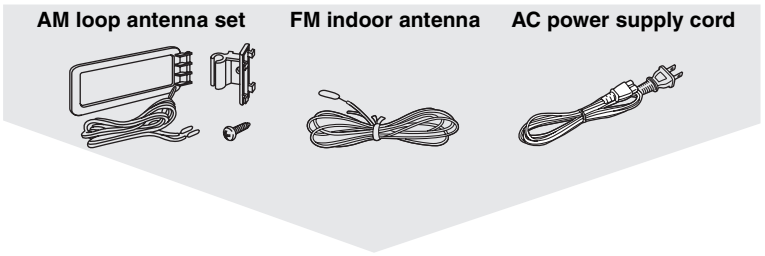
These terminals can be used for either interlace or progressive output and provide a purer picture than the S-VIDEO OUT terminal. Connection using these terminals outputs the color difference signals (P_B/P_R) and luminance signal (Y) separately in order to achieve high fidelity in reproducing colors.

- The description of the component video input terminals depends on the television or monitor (e.g. $Y/P_B/P_R$, Y/B-Y/R-Y, $Y/C_B/C_R$). Connect to terminals of the same color.
- After making this connection, change the black level for a better picture (➡ page 32, Video—Black Level Control).

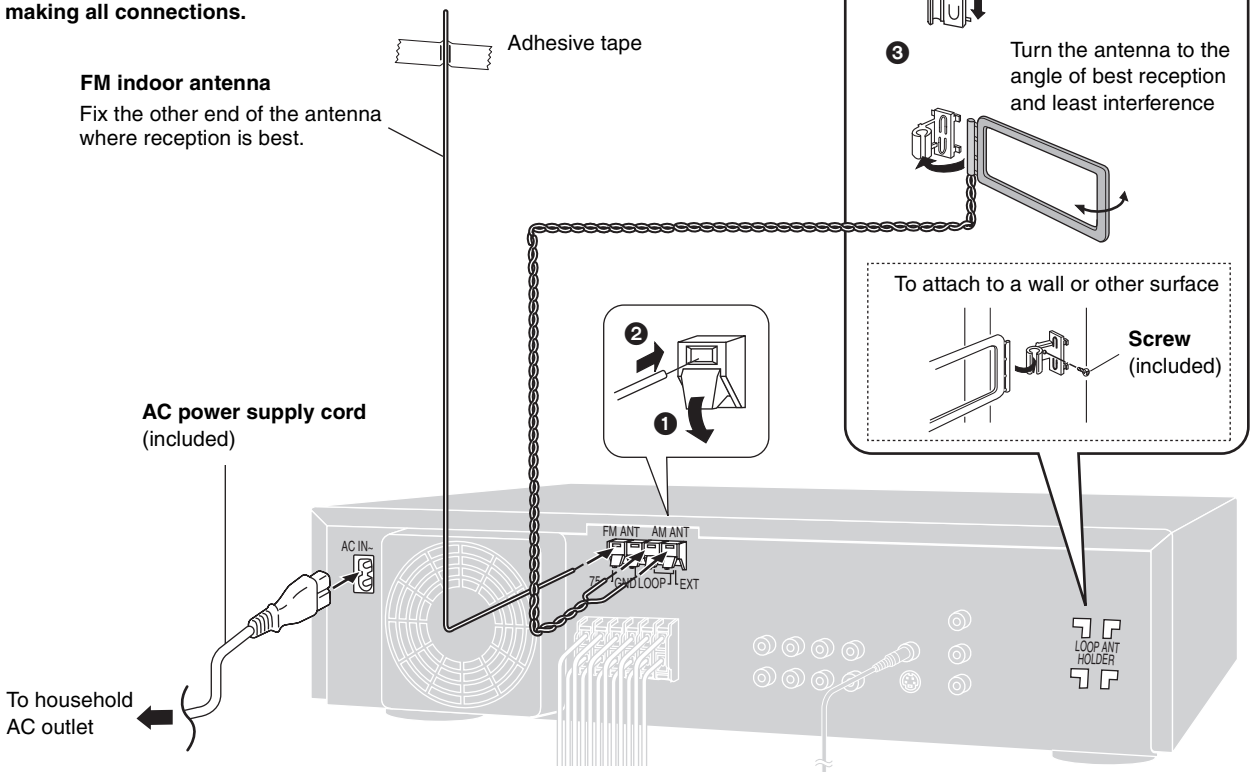
To enjoy progressive video

- Connect to the component video (480P) input terminals on a television compatible with this unit's copy guard system. (Video will not be displayed correctly if connected to an incompatible television.)
- Press [PROGRESSIVE OUT] on the main unit so "PROGRESSIVE" appears on the display (➡ page 12).
- All televisions manufactured by Panasonic and that have 480P input connectors are compatible. Consult the manufacturer if you have another brand of television.

STEP 4 Antennas and AC power supply cord



Plug in the AC power supply cord after making all connections.

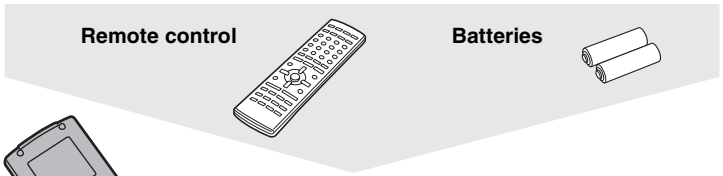

Adhesive tape
FM indoor antenna
Fix the other end of the antenna where reception is best.
AM loop antenna
Keep loose antenna cord away from other wires and cords.
AM loop antenna holder (included)
Turn the antenna to the angle of best reception and least interference
To attach to a wall or other surface
Screw (included)
AC power supply cord (included)
To household AC outlet
AC IN
FM ANT
AM ANT
75Ω UNBAL
GND
LOOP
EXT
LOOP ANT HOLDER

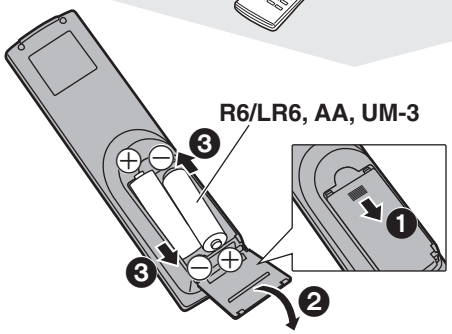
Conserving power

The unit consumes power (approx. 0.5 W) even when it is turned off with [⏻]. To save power when the unit is not to be used for a long time, unplug it from the household AC outlet.

Remember to reset the radio stations and any other memory items before using the unit again.
Information you enter into the unit's memory remains intact for up to 1 week after the AC power supply cord is disconnected.

STEP 5 The remote control





- Insert so the poles (+ and −) match those in the remote control.
- Do not use rechargeable type batteries.

Do not;

- mix old and new batteries.
- use different types at the same time.
- heat or expose to flame.
- take apart or short circuit.
- attempt to recharge alkaline or manganese batteries.
- use batteries if the covering has been peeled off.

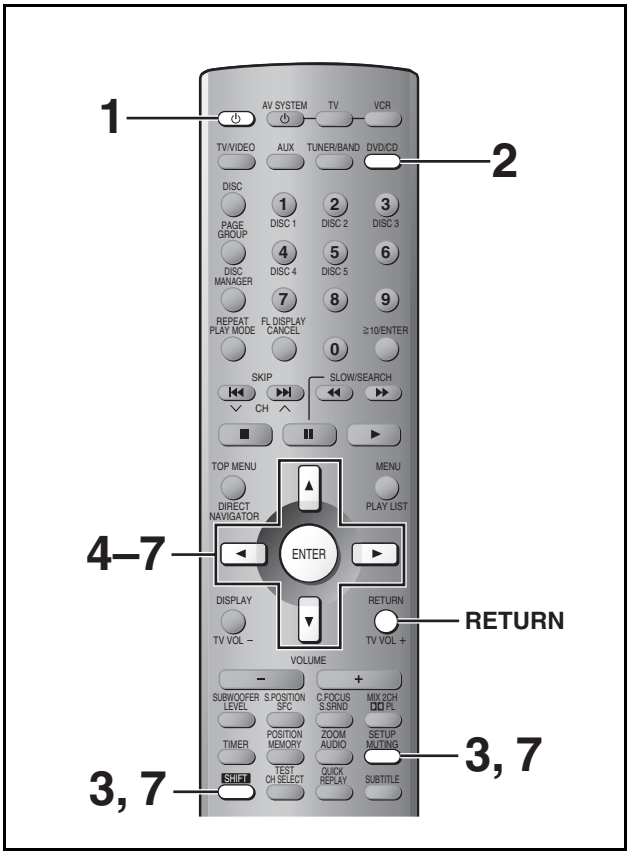
Mishandling of batteries can cause electrolyte leakage which can damage items the fluid contacts and may cause a fire.

Remove if the remote control is not going to be used for a long period of time. Store in a cool, dark place.

■ Use

Aim at the sensor, avoiding obstacles, at a maximum range of 7 m (23 feet) directly in front of the unit.

STEP 6 QUICK SETUP



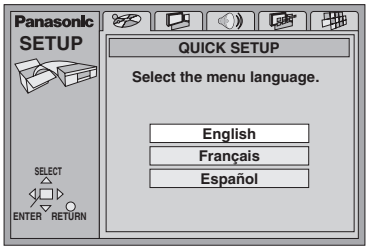
The **QUICK SETUP screen** appears when you press [SHIFT]+[SETUP] the first time after purchase and assists you to make necessary settings. You can access this screen again later if you need to (➡ page 32, Others—QUICK SETUP).

Preparation
Turn on the television and select the appropriate video input on the television to suit the connections for the unit.

1 **Press [⏻] to turn on the unit.**

2 **Press [DVD/CD] to select "DVD/CD" as the source.**

3 **Press [SHIFT]+[SETUP] to show the QUICK SETUP screen.**



4 **Press [▲, ▼] to select the menu language and press [ENTER].**

5 **Press [▲, ▼] to select "Yes" to continue and press [ENTER].**

6 **Press [▲, ▼] to select the item and press [ENTER].**
- Audio Language (➡ page 32)
- Subtitle Language (➡ page 32)
- TV Type (➡ below)
- TV Aspect (➡ below)

7 **Press [ENTER] and then [SHIFT]+[SETUP] to end the settings.**

To return to the previous screen
Press [RETURN].

■ TV Type

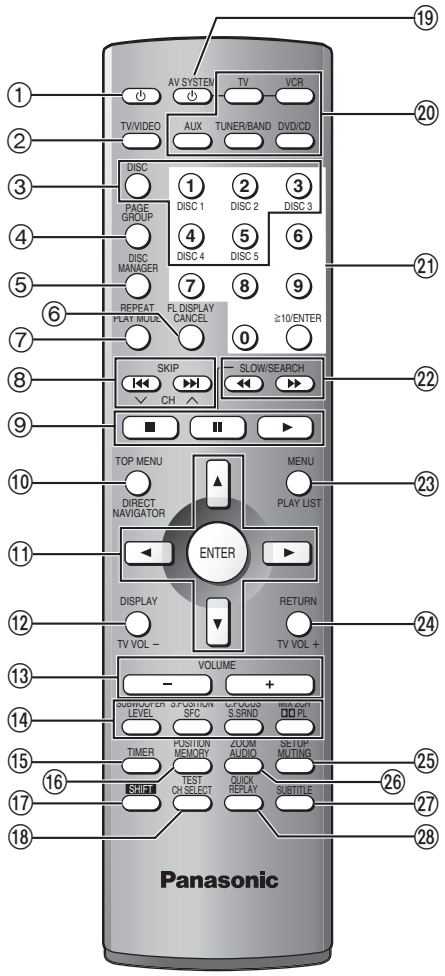
Select to suit the type of television.
- **Standard (Direct View TV)** (factory preset)
- **CRT Projector**
- **LCD TV/Projector**
- **Projection TV**
- **Plasma TV**

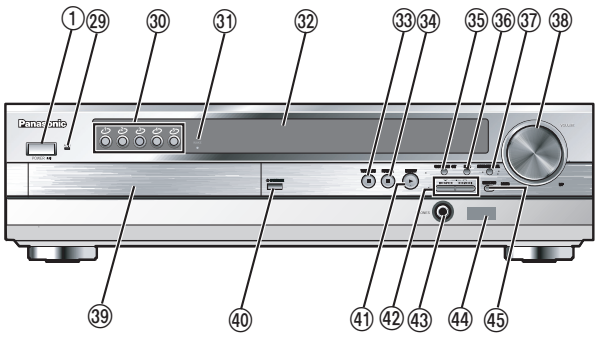
■ TV Aspect

Select **"4:3"** (regular) or **"16:9"** (widescreen) to suit your television.
If you have a regular 4:3 television, you can also select how video on some discs is shown (➡ page 32, Video—TV Aspect).

- **4:3 Pan&Scan** (factory preset)
  Widescreen software is expanded to fill the screen of a 4:3 aspect television (unless prohibited by the producer of the disc).

- **4:3 Letterbox**
  Widescreen software is shown in the letterbox style on a 4:3 aspect television.



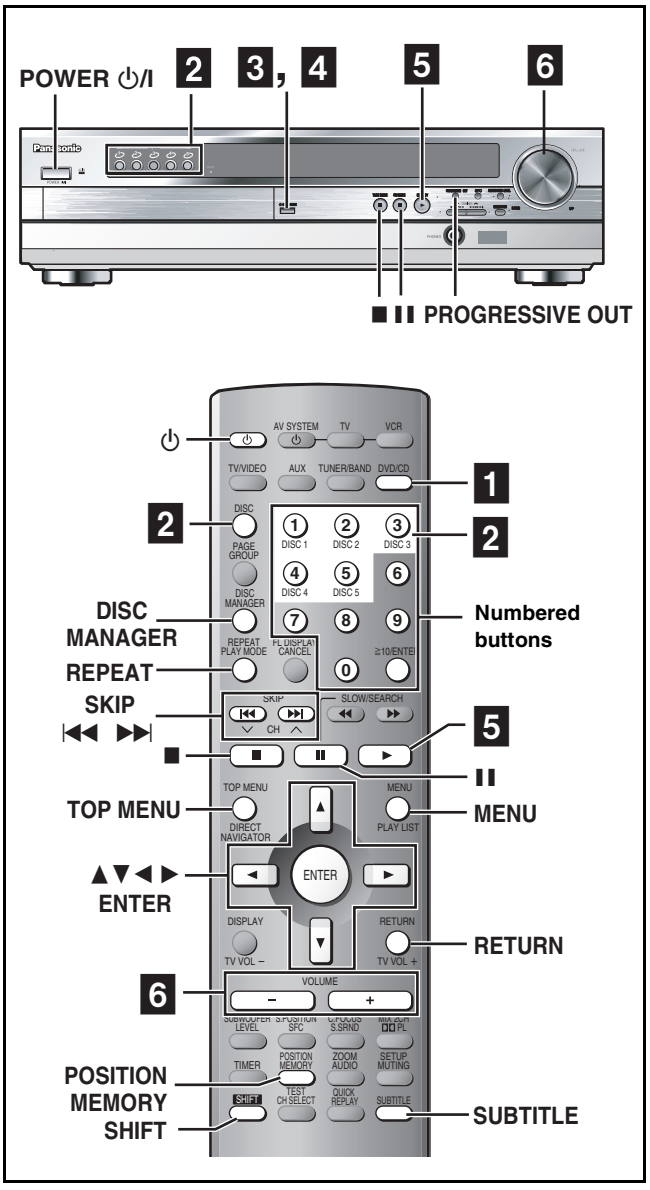


Remote control

① **Standby/on switch [⏻]** **10**
② **TV/VIDEO button [TV/VIDEO]** **30**
③ **Disc select button [DISC], Disc buttons [DISC1]–[DISC5]** . . **12**
④ **Group, Page button [GROUP, PAGE]** **14, 15**
⑤ **Disc manager button [DISC MANAGER]** **13**
⑥ **Cancel, FL display button [CANCEL, FL DISPLAY]** **17, 29**
⑦ **Play mode, Repeat button [PLAY MODE, REPEAT]** **15, 17**
⑧ **Skip, Preset channel, TV channel button [|◀◀ ▶▶|, SKIP, ∨ CH ∧]** **14, 25, 30**
⑨ **Basic operation buttons** **12**
⑩ **Top menu, Direct navigator button [TOP MENU, DIRECT NAVIGATOR]** **12, 19**
⑪ **Cursor buttons [▲, ▼, ◀, ▶], Enter button [ENTER]** **10**
⑫ **Display, TV volume down button [DISPLAY, TV VOL−]** . . **22, 30**
⑬ **Volume buttons [−, +, VOLUME]** **12**
⑭ **Sound field, sound quality buttons** **26–28**
⑮ **Timer button [TIMER]** **29**
⑯ **Position memory button [POSITION MEMORY]** **13**
⑰ **Shift button [SHIFT]**
To use functions labeled in orange:
While pressing [SHIFT], press the corresponding button.
⑱ **Channel select, Test button [CH SELECT, TEST]** **26**
⑲ **AV system standby/on button [⏻, AV SYSTEM]** **30**
⑳ **Source select buttons**
Face towards this unit to change the source.
Press [TV] or [VCR] first to operate a Panasonic television or video cassette recorder (➡ pages 30, 31).
㉑ **Numbered buttons [1–9, 0, ≧10/ENTER]** **14**
㉒ **Slow/search button [◀◀, ▶▶ SLOW/SEARCH]** **14**
㉓ **Menu, Play list button [MENU, PLAY LIST]** **12, 19**
㉔ **Return, TV volume up button [RETURN, TV VOL+]** . . . **10, 30**
㉕ **Muting, Setup button [MUTING, SETUP]** **10, 29**
㉖ **Audio, Zoom button [AUDIO, ZOOM]** **16, 18**
㉗ **Subtitle button [SUBTITLE]** **16**
㉘ **Quick replay button [QUICK REPLAY]** **14**

Main unit

① **Standby/on switch [POWER ⏻/I]** **10**
Press to switch the unit from on to standby mode or vice versa.
In standby mode, the unit is still consuming a small amount of power.
㉙ **AC supply indicator [AC IN]**
This indicator lights when the unit is connected to the AC mains supply.
㉚ **Disc select buttons/indicators [DISC 1–5]** **12**
㉛ **Wake timer indicator [WAKE]** **29**
㉜ **Display**
㉝ **Stop, Tune mode button [■, TUNE MODE]** **12, 25**
㉞ **Pause, FM mode button [❚❚, FM MODE]** **12, 25**
㉟ **Progressive out button [PROGRESSIVE OUT]** **12**
㊱ **Sound field control button [SFC]** **27**
㊲ **Subwoofer level button [SUBWOOFER LEVEL]** **28**
㊳ **Volume control [VOLUME, DOWN, UP]** **12**
㊴ **Disc tray** **12**
㊵ **Open/close button [⏏, OPEN/CLOSE]** **12**
㊶ **Play, Memory button [▶, MEMORY]** **12, 25**
㊷ **Skip/search, Tuning buttons [|◀◀/◀◀, ▶▶/▶▶|, ∨ TUNING ∧]** **14, 25**
㊸ **Headphone jack [PHONES]** **29**
㊹ **Remote control signal sensor**
㊺ **Source select button [SELECTOR]** **25**



RAM DVD-A DVD-V VCD CD WMA MP3 JPEG

Preparation

- Press [⏻] to turn on the unit.
- Turn on the television and select the appropriate video input on the television to suit the connections for the unit.

1 Press [DVD/CD] to select "DVD/CD" as the source.

To enjoy progressive video

Press [PROGRESSIVE OUT].

The television will be disrupted for a moment but this is normal.

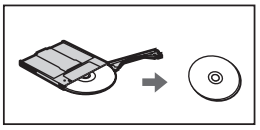
- Output from this unit is interlace if you have connected to the television through the VIDEO OUT or S-VIDEO OUT or playing PAL discs, even if "PROGRESSIVE" is on the display.
- When progressive output is on, closed captions will not be displayed.

2 Press [DISC] and then ([DISC 1]–[DISC 5]).

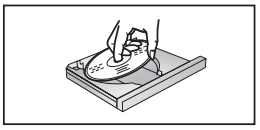
The indicator on the main unit lights.
Play starts if a disc is in the tray.
Main unit: Press [DISC 1]–[DISC 5].

3 Press [▲] to open the disc tray and place the disc.

- Remove TYPE 2 and 4 discs from their cartridges before use. RAM



- Label-up (With double-sided discs, load so the label for the side you want to play is facing up.)



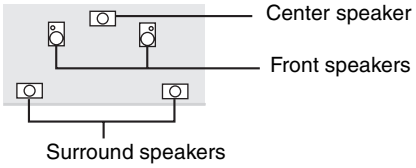
4 Press [▲] to close the disc tray.

If the disc contains both audio data (WMA and MP3) and JPEG, check "Mixed Disc—Audio & Stills" setting in the SETUP menu (➡ page 32). Select "Stills (JPEG)" or "Audio (MP3/WMA)".

5 Press [▶] (play).

Play begins.
WMA MP3 CD (CD text only)
Group and track names are displayed on the television.

- Press [SUBTITLE] to turn the display on or off.
- You can also use the navigation menus to control play (➡ page 20).



6 Adjust the volume.

– – dB ◢ 0 dB
(Minimum) (Maximum)

■ To pause play

Press [❚❚] during play.
Press [▶] (play) to restart play.

■ To stop play

Press [■] (➡ page 13, Resume function).

Note

- **If "⃠" appears on the television**
  The operation is prohibited by the unit or disc.
- It may take some time for play to start but this is normal.

When a menu appears on the television

DVD-A DVD-V VCD

Press the numbered buttons to select an item.

To select a 2-digit number

Example: To select item 23, press [≧10] ➡ [2] ➡ [3].

- When playing DVDs, you can also use [▲, ▼, ◀, ▶] to select items. Press [ENTER] to confirm your selection.

To return to the menu screen

DVD-A DVD-V [TOP MENU]: Shows the first menu screen.
DVD-V [MENU]: Shows the menu screen.
VCD [RETURN]: Shows the menu screen.

Note

The disc continues to rotate while the menu is displayed even after you finish playing an item. Press [■] when you finish to preserve the unit's motor and your television screen.

Using the disc manager

VCD CD

The disc manager allows you to choose one track or disc to play or to play all five discs in succession.

1 **While stopped**

Press [DISC MANAGER] to select the desired method.

Each time you press the button:

→ (1-TRACK): One track play
↓
(1-DISC): Plays one disc.
↓
(ALL-DISC): Plays five discs in succession.
↓
(NORMAL): Disc manager is cancelled.
(only the current disc is played)

2 **Select the disc and track.**

- **When selecting "1-DISC",** press [DISC] and [1]–[5].
- **When selecting "1-TRACK",** press the numbered buttons.
  To select a 2-digit number
  Example: To select track 23: press [≧10] ➡ [2] ➡ [3].
  You can also select the track by pressing [|◀◀] and [▶▶|].

3 **Press [▶] (play).**

To cancel disc manager
Press [■].

To play a track or disc repeatedly
Press [SHIFT]+[REPEAT] during disc manager play (➡ page 15).

Note

- You cannot use the disc manager while "RANDOM" or "PRGM" are on.
- When playing video CDs with playback control in the "1-DISC" or "ALL DISC" mode, you can play the disc without having to operate the disc's menus.
- The disc manager skips any DVD and WMA/MP3/JPEG discs that are loaded.

Position Memory function

RAM DVD-A DVD-V VCD CD WMA MP3 JPEG

During play

Press [POSITION MEMORY] to memorize a position.

Press again to replace the position.
This position is saved even if you turn the unit off, change the source or change discs. When you turn the unit on, reselect "DVD/CD" or reinsert the disc whose position you memorized, "RESUME" lights on the display. Press [▶] (play) to start play from the memorized position. The position is cleared.

- You can memorize positions on up to five different discs at a time. When you memorize another position, the earliest position is replaced.
- This function does not work when using Disc manager.

Resume function

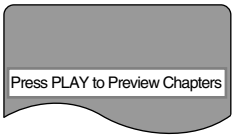
"RESUME" lights on the display when the unit has recorded the position at which you stopped play.
Press [▶] (play) to start play from that position.

- The position is cleared when you:
  —Turn the unit off.
  —Select another source or change discs.
- Press [■] to clear the position.

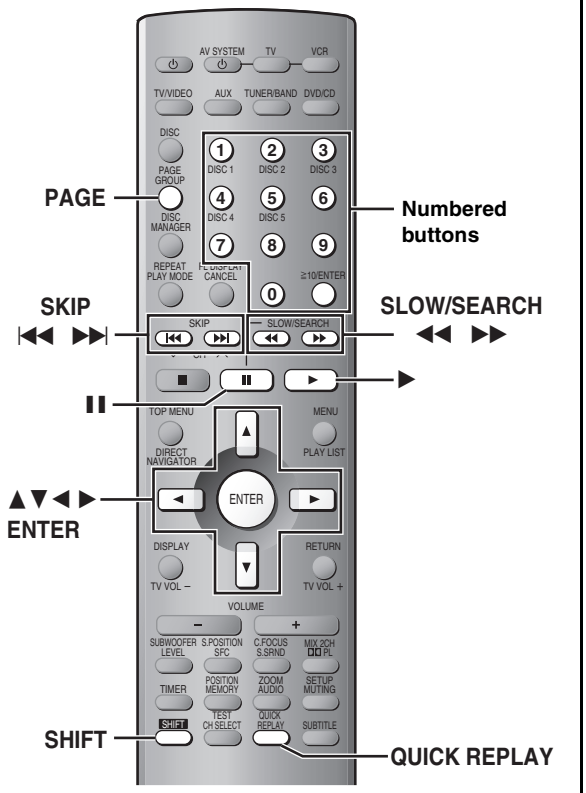
Chapter Preview

DVD-V

The following message appears immediately after you press [▶] (play) when "RESUME" is displayed.
Press [▶] (play) while the message is displayed and the beginning portions of each chapter up to the current one are played.



Full play resumes from the point where you pressed [■] or [POSITION MEMORY].
(This feature works only within a title.)
If you do not press [▶] (play), the message disappears and play starts from where you pressed [■] or [POSITION MEMORY].



Replaying a scene—QUICK REPLAY

RAM DVD-A DVD-V VCD CD WMA MP3

Skip back a few seconds within the current item (program, track or title).

JPEG

Skip back a few pictures.

During play

Press [QUICK REPLAY].

Note

This feature may not work while playing some parts of a disc or at all with some discs.

Starting play from a selected item

RAM DVD-A DVD-V VCD CD WMA MP3 JPEG

Press the numbered buttons to select the item.

Play starts from the selected item.

To select a 2-digit number

Example: To select track 23, press [≧10] ➡ [2] ➡ [3].

WMA MP3 JPEG [2] ➡ [3] ➡ [ENTER]

Note

- This works only when stopped with some discs.
- When playing DVD-Audio and you want to start play from a track in a different group, select the group first (➡ page 15).

Selecting still pictures—Page Skip

DVD-A

During play or while paused

Press [SHIFT]+[PAGE].

The page changes each time you press the button.

PAGE 1

Skipping items

RAM DVD-A DVD-V VCD CD WMA MP3

During play or while paused

Press [|◀◀] or [▶▶|].

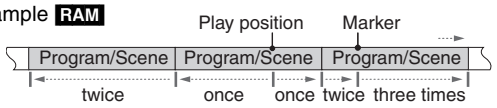
- Press [|◀◀/◀◀] or [▶▶/▶▶|] on the main unit.

JPEG

Press [◀] or [▶] for picture skip, or [▲] or [▼] for group skip.

- Each press increases the number of skips.

Example RAM



Fast forward and rewind—SEARCH

RAM DVD-A DVD-V VCD CD WMA MP3

During play

Press [◀◀] or [▶▶].

- Press and hold [|◀◀/◀◀] or [▶▶/▶▶|] on the main unit.
- Audio will be heard during search for most discs. You can turn this audio off if you want to (➡ page 32, Audio—Audio during Search).
- DVD-V You can slow down or speed up play (➡ page 22).

Slow-motion play

RAM DVD-V VCD

DVD-A (Motion picture parts only)

While paused

Press [◀◀] or [▶▶].

- Press and hold [|◀◀/◀◀] or [▶▶/▶▶|] on the main unit.

Frame-by-frame viewing

RAM DVD-V VCD

DVD-A (Motion picture parts only)

While paused

Press [◀] or [▶].

The frame changes each time you press the button.

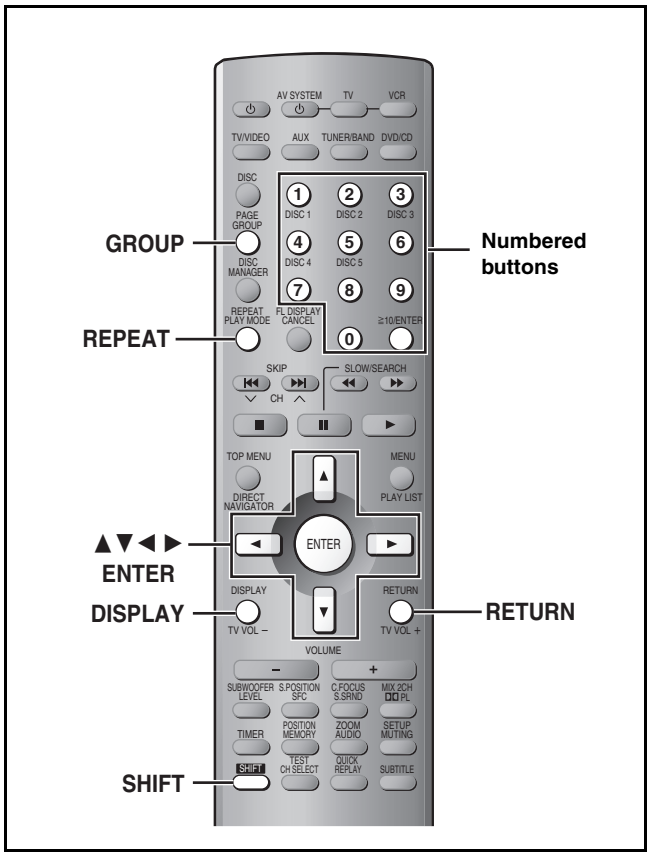
- The frames change in succession if you press and hold the button.
- Pressing [❚❚] also activates forward frame-by-frame.

Notes

- The speed of search and slow-motion increases up to 5 steps.
- Press [▶] (play) to restart play.
- You cannot move backwards with Video CD during frame-by-frame and slow-motion.

When playing Video CDs with playback control

Pressing buttons to perform skip, search or slow-motion may take you to a menu screen.



Selecting groups to play

DVD-A WMA MP3 JPEG

1 Press [GROUP].

Example MP3

Track number in group

Group number

2 Press the numbered buttons to select the group and press [ENTER].

3 Press the numbered buttons to select the track/picture number and press [ENTER].

DVD-A

Playing all the groups in succession (➡ page 17, All group play)

Playing bonus groups

Some discs contain bonus groups. If a password screen appears after selecting a group, enter the password with the numbered buttons. Refer also to the disc's jacket.

Repeat play

RAM DVD-A DVD-V JPEG

VCD CD WMA MP3 (There is no on-screen display.)

During play

Press [SHIFT]+[REPEAT].

Example RAM

Each time you press the button:

RAM

PG REPEAT→ALL REPEAT (Entire disc)→REPEAT OFF

●During play list play

SCENE REPEAT→PL REPEAT→REPEAT OFF

DVD-V

CHAPTER REPEAT→TITLE REPEAT→REPEAT OFF

VCD CD

You can repeat tracks as follows depending on the Disc Manager setting (➡ page 13).

1-TRACK → 1-DISC → ALL-DISC → NORMAL

DVD-A WMA MP3

TRACK REPEAT→GROUP REPEAT※→REPEAT OFF

JPEG

GROUP REPEAT←→REPEAT OFF

※**During all group (DVD-A), program and random play**

"ALL REPEAT" is displayed.

●You can also repeat play of content and group on HighMAT discs.

■ To repeat only your favorite tracks/chapters

Start program play (➡ page 17) and press [SHIFT]+[REPEAT] to select the repeat mode.

A-B repeat play

RAM DVD-A DVD-V VCD CD WMA MP3

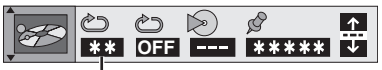
You can repeat a section between points A and B within a program, title or track.

1 During play

Press [DISPLAY] until the unit information screen is displayed (➡ page 23).

2 Press [▲, ▼] to select the play menu.

Example DVD-V



A-B Repeat

3 Press [◀, ▶] to select "A-B Repeat" and

① Press [ENTER] at the starting point (A).

② Press [ENTER] at the finishing point (B).

A-B repeat starts.

To return to the normal play

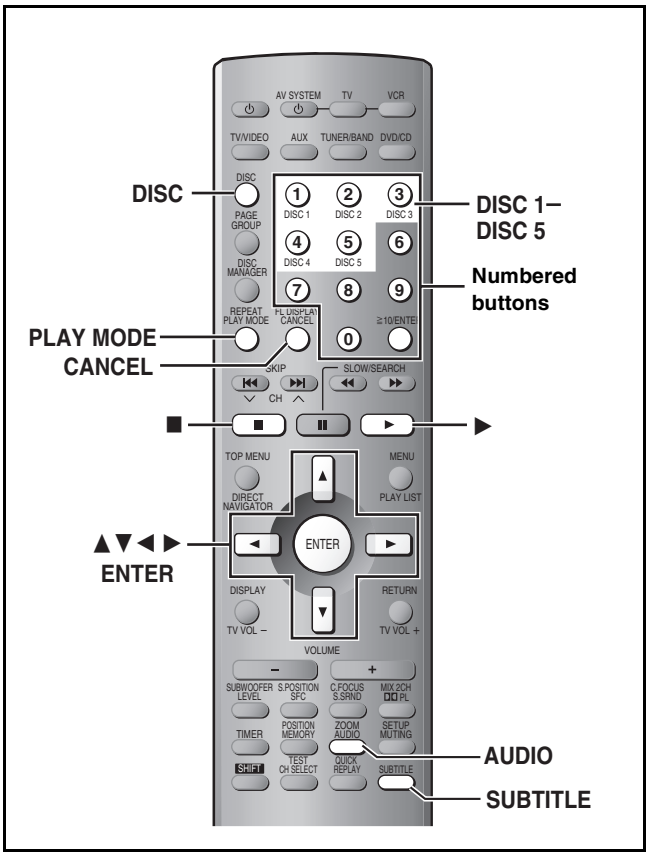
Press [ENTER] again.

To clear the menus

Press [RETURN] until the menu disappears.

Note

A-B repeat is canceled when you press [QUICK REPLAY].



●"–" or "––" is displayed instead of the language number in circumstances such as when no language is recorded on the disc.

VCD (SVCD only)

Soundtrack and subtitle numbers may change even if corresponding soundtracks are not recorded.

Soundtracks

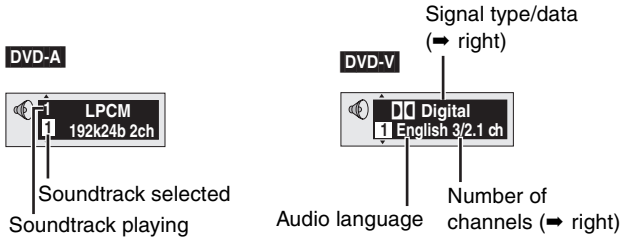
RAM DVD-A DVD-V VCD

(Discs with multiple soundtracks)

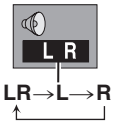
During play

Press [AUDIO].

The number changes each time you press the button.



RAM VCD



●You can also use this button to turn the vocals on and off on karaoke discs. Read the disc's instructions for details.

DVD-A

●Play restarts from the beginning of the soundtrack when changing soundtracks that are accompanied by still pictures.

●Even if a second soundtrack isn't recorded, two soundtrack numbers will normally be shown when you press [AUDIO]. The soundtrack currently playing is number 1.

Signal type/data

LPCM/PPCM/DDDigital/DTS: Signal type

k (kHz): Sampling frequency

b (bit): Number of bits ch (channel): Number of channels

Example:

3/2 .1ch

- .1: Low frequency effect (not displayed if there is no signal)
- 0: No surround
  1: Mono surround
  2: Stereo surround (left/right)
- 1: Center
  2: Front left+Front right
  3: Front left+Front right+Center

Subtitles

DVD-A (Motion picture parts only)

DVD-V VCD (SVCD only)

You can change the subtitle language and turn the subtitles on and off.

RAM

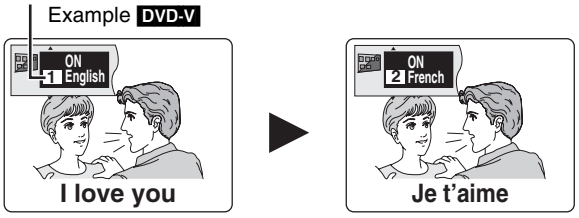
You can turn the subtitles on and off.

During play

Press [SUBTITLE].

The number changes each time you press the button.

Example DVD-V



●In some cases, the subtitle language is not changed to the selected one immediately.

●If the subtitles overlap closed captions recorded on discs, turn the subtitles off.

To clear/display the subtitles

1 Press [SUBTITLE].

2 Press [▶]. (DVD-A DVD-V VCD)

3 Press [▲, ▼] to select "OFF" or "ON".

■ Changing the position and brightness of the subtitles (➡ page 24)

DVD-A VCD CD

Common procedures for all group, program and random play

While stopped
Press [PLAY MODE].
Each time you press the button:
DVD-A
All group→Program→ Random→off (Normal play)
VCD CD
PRGM→RANDOM→RANDOM ALLDISC→off (Normal play)
DVD-A
If you select bonus groups, you will have to enter a password (➡ page 15).

All group play

DVD-A
The unit plays tracks in all the groups on a disc.

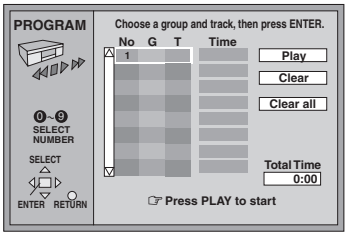
Press [▶] (play).

Program play

You can select up to 24 items to play in the order you choose.

VCD CD (There is no on-screen display.)
You can program all the items on discs.

DVD-A
You can program all the items on a disc in the play position.
Example DVD-A

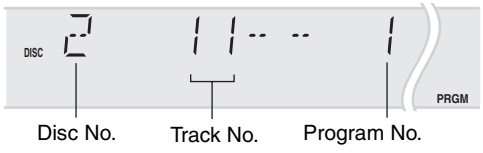


1 VCD CD

Press the [DISC] and then the disc button ([DISC 1]–[DISC 5]).

2 **Press the numbered buttons to select a group or track.**

Example CD



- **To select a 2-digit number**
  Example: To select item 25, press [≧10] ➡ [2] ➡ [5].
- Repeat steps 1 and 2 to program other items.
- VCD CD
  Step **1** is unnecessary when programming tracks on the same disc.
- DVD-A
  To select an item using the cursor buttons
  Press [ENTER] and [▲, ▼] to select an item, then press [ENTER] again to register the number.
  All the items in the selected disc or group are selected when you select "ALL".

3 **Press [▶] (play).**

To add or change the program
VCD CD (Add only)
Repeat steps **1** and **2.**
DVD-A
Press [▲, ▼] to select an available item, then repeat step **2**.

To clear an item
VCD CD
Press [CANCEL].
DVD-A
1 Select the item you want to clear with [▲, ▼].
2 Press [CANCEL], or select "Clear" with [▲, ▼, ◄, ►] and press [ENTER].

To clear the whole program
VCD CD
Press [■] so "CLEAR" is displayed.
DVD-A
Select "Clear all" with [▲, ▼, ◄, ►] and press [ENTER].

Note

- VCD CD
  Items the unit cannot find can be programmed but are canceled during play. This is also the case if you program DVD-RAM, DVD-Audio, DVD-Video, WMA, MP3 and JPEG.
- DVD-A
  The program is cleared when you switch the unit to standby, select another source, exit the program mode by pressing [PLAY MODE] or open the disc tray.
  VCD CD
  The program is retained in memory.

Random play

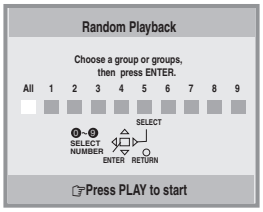
VCD CD (There is no on-screen display.)
RANDOM: You can play a disc in the play position in random order.
RANDOM ALLDISC: You can play all discs in random order.

DVD-A
You can play items on a disc in the play position in random order.

1 DVD-A

Press the numbered buttons to select a group.

Example DVD-A

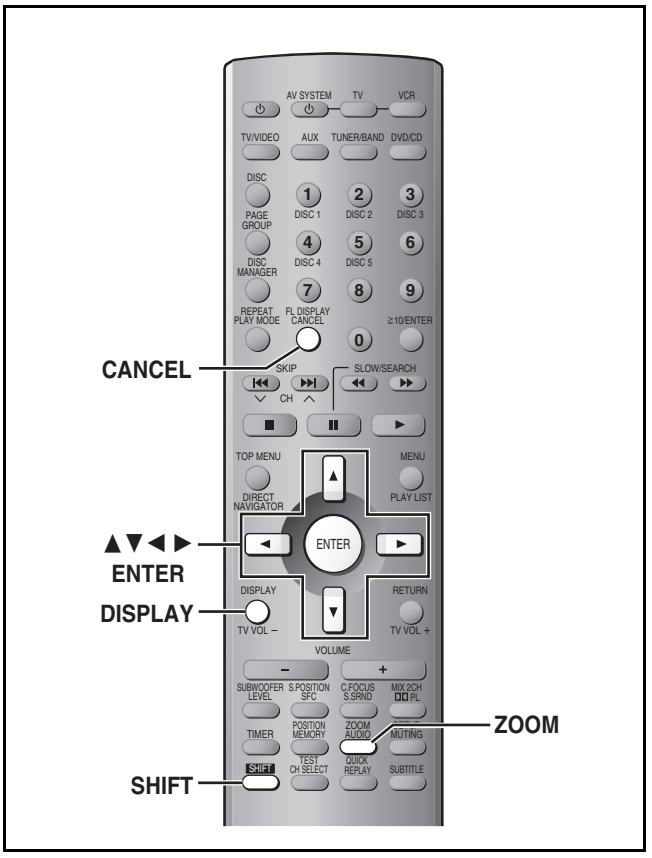

Random Playback
Choose a group or groups, then press ENTER.
All 1 2 3 4 5 6 7 8 9
SELECT
0~9 SELECT NUMBER
ENTER RETURN
Press PLAY to start

DVD-A
- You can select more than one group.
- To enter all groups, select "All" using [◄, ►] and press [ENTER].
- To deselect a group, press the numbered buttons corresponding to the group you want to clear.

2 **Press [▶] (play).**

Note

VCD CD
During random play, empty trays are skipped and the playback control function on Video CDs is canceled.



Marking places to play again

RAM DVD-A DVD-V VCD CD WMA MP3 JPEG

You can mark a position so you can return to it easily at a later time.

1 **During play**

Press [DISPLAY] until the unit information screen is displayed

(➡ page 23).

2 **Press [▲, ▼] to select the play menu.**

Example DVD-V

3 **Press [◀, ▶] to select "Marker" and press [ENTER].**

RAM

Press [▶] to select an asterisk (✳).

4 **Press [ENTER] at the point you want to mark.**

To mark another position

Up to 5 points (RAM only: up to 999 points)

1 Press [▶] to select "✳".

2 Press [ENTER] at the point.

To recall or erase a marker

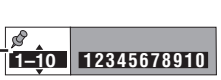
1 Press [◀, ▶] to select a marker.

2 Press [ENTER] to recall or press [CANCEL] to erase.

RAM

To mark the eleventh point and beyond

1 Press [◀, ▶] to select the marker pin icon.



2 Press [▲, ▼] to select "11–20".

You can select the next group when the current group is full.

Note

Markers added with this unit clear when you switch the unit to standby, change the source, or change the disc.

Variable Zoom function

RAM DVD-V VCD DVD-A (Motion picture parts only)

Change the zoom ratio so the picture expands to the optimum size to fill the screen.

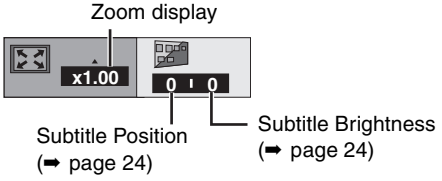
Preparation

Change the setting "TV Aspect" to suit your television (➡ page 32).

During play

Press [SHIFT]+[ZOOM] to select the aspect ratio.

Example DVD-V



Each time you press the button:

4:3 Standard→European Vista→16:9 Standard

↑ ↓

Cinemascope2←Cinemascope1←American Vista

- Refer to the disc's instructions and "Screen size" below for the aspect ratio of the picture.

To restore the original ratio

Press [SHIFT]+[ZOOM] until the ratio returns to 1.00.

- The ratio also returns to 1.00 when you change the disc, change the source or switch the unit to standby.
- The ratio may return to 1.00 when a menu is displayed.

Making fine adjustments to the zoom ratio

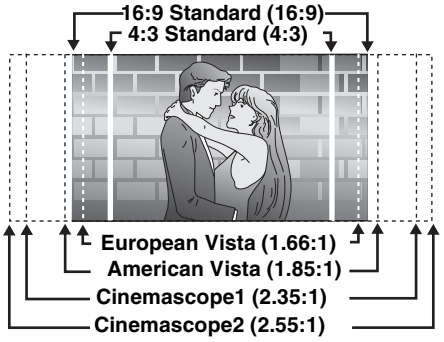
While the ZOOM icon is displayed

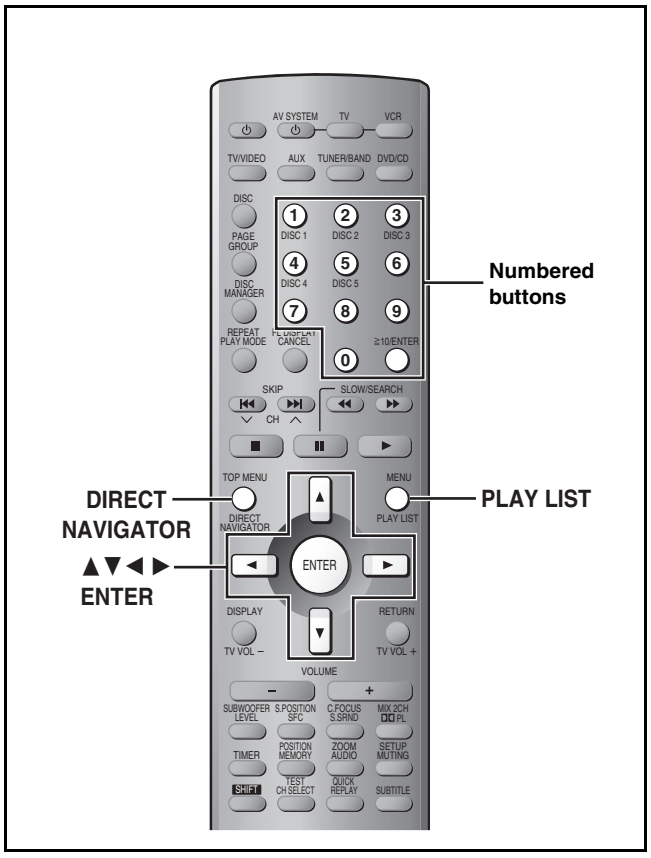
Press [▲,▼].

The ratio changes in 0.01 units between 1.00 and 1.60 and in 0.02 units between 1.60 and 2.00.

■ Screen size

Movies are made using a variety of screen sizes.



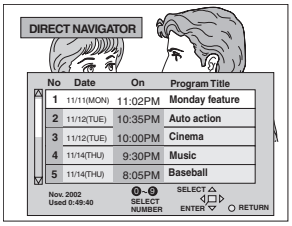


RAM

Selecting a program to play—DIRECT NAVIGATOR

Use the program list to find programs to play.

1 Press [DIRECT NAVIGATOR].



2 Press [▲, ▼] to select the program.

The selected program plays in the background.

- You can select programs with the numbered buttons.

To select a 2-digit number

Example 23: [≧10] ➡ [2] ➡ [3]

3 Press [ENTER].

The program being played in the background continues.

To clear the program list

Press [DIRECT NAVIGATOR].

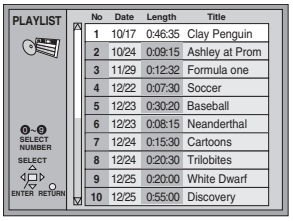
Note

- Titles appear only if you have entered them.
- You cannot change program and disc titles.

Using the play list menu

You can play a group of scenes, a play list, created on other equipment such as a DVD video recorder.

1 Press [PLAY LIST].



2 Press [▲, ▼] to select the play list.

- You can select play lists with the numbered buttons.

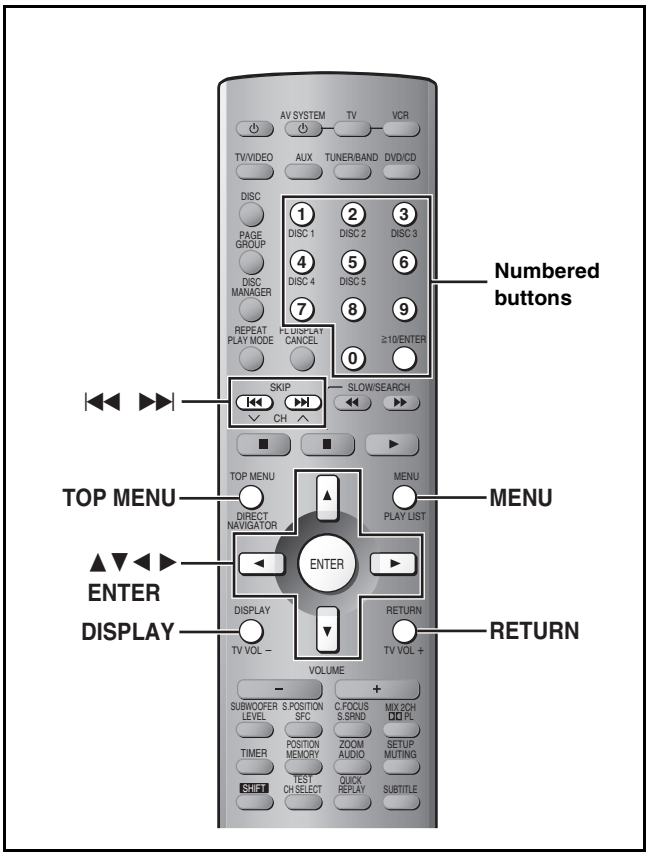
To select a 2-digit number

Example 23: [≧10] ➡ [2] ➡ [3]

3 Press [ENTER] to start play.

To clear the play list screen

Press [PLAY LIST].



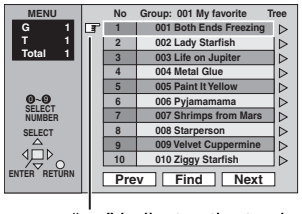
If the disc contains both audio data (WMA and MP3) and JPEG, check "Mixed Disc—Audio & Stills" setting in the SETUP menu (➡ page 32). Select "Stills (JPEG)" or "Audio (MP3/WMA)".

WMA MP3 CD (CD text only) JPEG

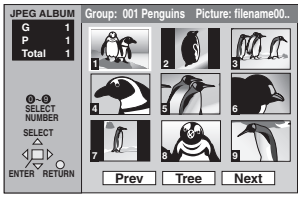
Various menus help you find items you want to start play.

1 Press [TOP MENU].

WMA MP3 Audio navigation menu



JPEG Album display



"☞" indicates the track currently playing.

2 Press [▲, ▼] to select a track or [▲, ▼, ◄, ►] to select a picture, and press [ENTER].

To show other pages, press [▲, ▼, ◄, ►] to select "Prev" or "Next" and press [ENTER].

- After listing all the tracks or pictures in one group, the list for the next group appears.

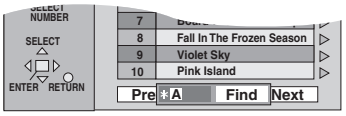
To exit to the menu
Press [TOP MENU].

Track title search WMA MP3 CD (CD text only)

Example: finding a track including the word "LOVE"

1 While the menu is displayed

Press [▲, ▼] to select "Find" and press [ENTER].



2 Press [▲, ▼] to select "L" and press [ENTER].

Characters change in alphanumeric order each time you press [▲].

Repeat this step to enter "O", "V", and "E".

- Press [|◄◄, ►►|] to skip between A, E, I, O, and U.
- Only uppercase appear but the search also includes lower case.
- Press [◄] to erase a character.
- You can erase the asterisk (✳) to search for the first word in a title.
- You can enter numbers with the numbered buttons.

3 Press [►] to select "Find" and press [ENTER].

The search results screen appears.

4 Press [▲, ▼] to select the track and press [ENTER].

To return to the menu
Press [RETURN].

To use the tree screen to find a group WMA MP3 JPEG

1 While the menu is displayed

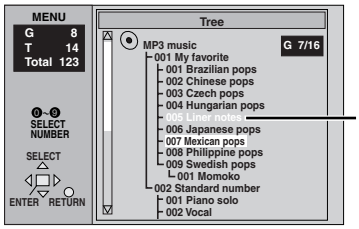
WMA MP3

Press [►] while a track is highlighted to display a tree screen.

JPEG

Press [▲, ▼, ◄, ►] to select "Tree" and press [ENTER].

Example MP3



You cannot select groups that contain no compatible files.

2 Press [▲, ▼, ◄, ►] to select a group and press [ENTER].

The audio navigation menu/album display for the group appears.

To return to the menu
Press [RETURN].

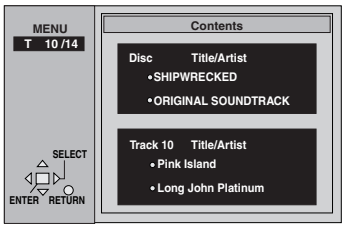
To use the contents screen to find a track

CD (CD text only)

You can use the text information recorded on these discs to find a track to play.

1 **While the menu is displayed**

Press [►] while a track is highlighted to display the contents screen.



2 **Press [◄, ►] to move through the tracks and press [ENTER].**

To return to the menu
Press [RETURN].

See page 35 for details about WMA, MP3, CD text and JPEG.

Playing HighMAT discs

A menu appears when you select the disc.

Press [▲, ▼, ◄, ►] to select then press [ENTER].

When you press [ENTER]:

Menu: Takes you to the next menu which shows play lists or another menu

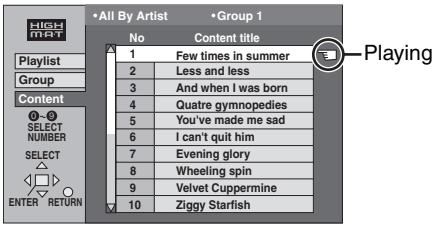
Play list: play starts

- **To return to the menu screen**
  Press [TOP MENU].
- **To return to the menu above the current one**
  Press [RETURN].
- **To change the menu background**
  Press [DISPLAY].
  The background changes to the one recorded on the disc.

Selecting from the lists

1 **During playing**

Press [MENU].



2 **Press [◄] then [▲, ▼] to switch between the play list, group and content lists.**

3 **Press [►] then [▲, ▼] to select an item and press [ENTER].**

To exit the list screen
Press [MENU].

HIGH MAT AUDIO•IMAGE

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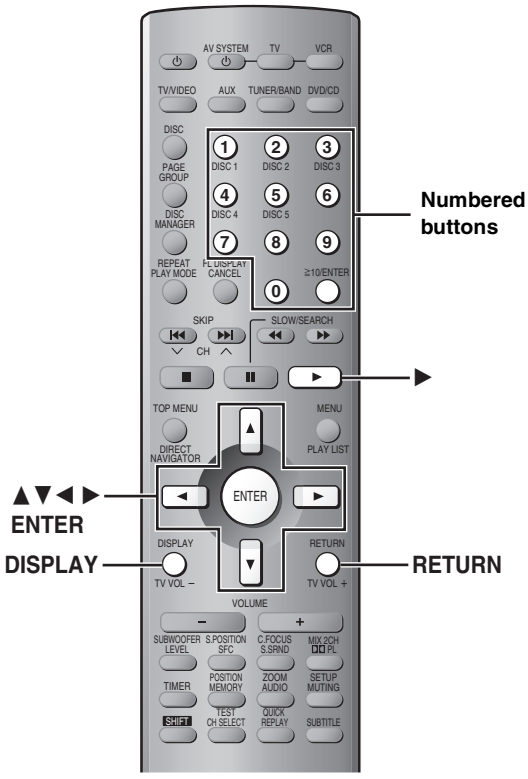


RAM DVD-A DVD-V VCD CD WMA MP3 JPEG

On-Screen Menu Icons are menus that contain information about the disc or unit. These menus allow you to perform operations by changing this information.

Common procedures

1 Press [DISPLAY].

Each time you press the button:

→Disc information (➡ page 23)
↓
Progress indicator (➡ right)
↓
Unit information (➡ page 23)
↓
Original display

2

Unit information only

While the leftmost icon is highlighted

Press [▲, ▼] to select the menu.

Each time you press the button:

→Play menu
↓ ↑
Display menu
↓ ↑
Audio menu
↓ ↑
Picture menu

3 Press [◄, ►] to select the item.

4 Press [▲, ▼] to select the setting.

- Items with "▲" or "▼" above and below can be changed by [▲, ▼].
- Press [ENTER] if the setting does not change after pressing [▲, ▼].
- Some items require different operations. Read the explanations on the following pages.

For your reference

- Depending on the condition of the unit (playing, stopped, etc.) and the type of software you are playing, there are some items that you cannot select or change.
- When numbers are displayed (e.g. title No.), the numbered buttons are also effective for setting. After entering the numbers, press [ENTER] to register the setting.

To clear the menus

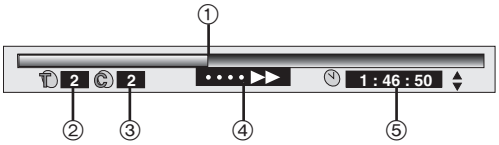
Press [RETURN] until the menus disappear.

■ To change the position of the icons

1 Press [◄, ►] to select the rightmost icon.
2 Press [▲, ▼] to move the icons.
(There are 5 positions.)

Progress indicator

Indicates how far you have played through an item.
Example DVD-V



① **Current position** RAM DVD-A DVD-V VCD CD WMA MP3
② **PG: Program number** RAM
PL: Play list number RAM
T: Title number DVD-V
Track number VCD CD
G: Group number DVD-A WMA MP3 JPEG
③ **T: Track number in group** DVD-A WMA MP3
C: Chapter number DVD-V
P: Picture number JPEG
④ **Condition–play, pause, or slow/search**
RAM DVD-A DVD-V VCD CD WMA MP3
Play speed (➡ below)
⑤ **Changing the time display** RAM DVD-A DVD-V VCD CD
Press [▲, ▼] to show the elapsed play time or remaining time for the program, play list, track or title (or chapter during program and random play).
Elapsed play time VCD (SVCD only) WMA MP3
(display only, cannot be changed)

Changing play speed

DVD-A (Motion picture parts only) DVD-V
(Dolby Digital only)
You can slow down or speed up play.

During play

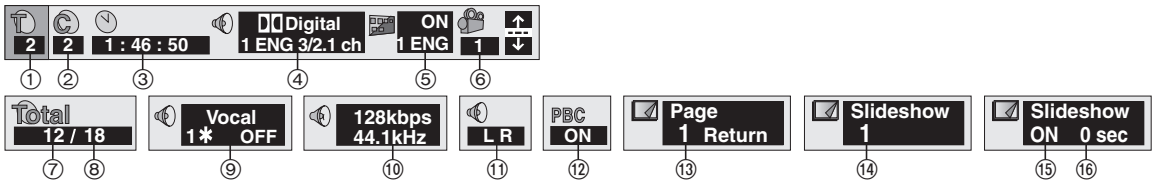
Press [◄] (slower) or [►] (faster).

There are five speeds:
×0.8←→×0.9←→×1.0 (normal speed)←→×1.2←→×1.4

After you change the speed, output is in stereo.
Sound is stereo as long as "×1.0" is orange.
To return to normal play (surround sound), press [►] (play) or [ENTER].
Normal play is also restored when you return the speed to ×1.0 and clear the progress indicator.

Unless otherwise indicated, select items with [◄, ►] and change with [▲, ▼].

Disc information



①	PG: Program number **RAM** PL: Play list number **RAM** G: Group number **DVD-A** WMA MP3 JPEG T: Title number **DVD-V** Track number VCD CD	[▲, ▼] ↓ [ENTER]
②	T: Track number in group **DVD-A** WMA MP3 C: Chapter number **DVD-V** P: Picture number JPEG	
③	**Time RAM DVD-A DVD-V** Select a position to start play by specifying a time.	Numbered buttons ↓ [ENTER]
	Changing the time display **RAM DVD-A DVD-V** VCD CD [VCD (SVCD only) WMA MP3 Display only] →Elapsed play time for the program, play list, title or track ↓ ↑ Remaining time for the group (**DVD-A**) or disc (VCD CD) ↓ ↑ →Remaining time for the program, play list, title or track	
④	**Soundtrack DVD-A DVD-V** (➡ page 16) Refer to "Audio/Subtitle language" (➡ right) for language abbreviations.	
⑤	**Subtitle language DVD-A DVD-V** VCD (SVCD only) (➡ page 16) Refer to "Audio/Subtitle language" (➡ right) for language abbreviations. **Subtitles on/off RAM DVD-A DVD-V** VCD (SVCD only) **Track information on/off** WMA MP3 CD (CD text only) **Picture data** JPEG Full: Group title, picture title, picture size, file size, date of shooting, and camera model used.✱ Date: Date of shooting only. OFF: No display ✱Displays differ depending on the type of camera and condition of the data.	

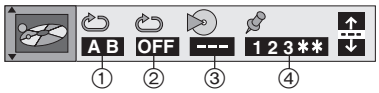
⑥	**Angle number DVD-A DVD-V** **Picture rotation** JPEG 0←→90←→180←→270 ↑ ↑	
⑦	**Track/picture number in disc** WMA MP3 JPEG	[▲, ▼] ↓ [ENTER]
⑧	**Total number of tracks/pictures on disc** WMA MP3 JPEG	Display only
⑨	**Karaoke vocal on/off DVD-V** (Karaoke DVD only) If a DVD title is a duet, select V1 or V2 to duet with the unit.	
⑩	**Current bitrate (kbps)** **Current sampling frequency (kHz)** WMA MP3	Display only
⑪	**Audio mode RAM** VCD LR←→L←→R ↑ ↑	
⑫	**Menu play** VCD (with playback control only)	Display only
⑬	**Still picture number DVD-A** ●To return to page 1 [◄, ►]→Select "Return"→[ENTER]	
⑭	**Slideshow DVD-A** Picture number	Display only
⑮	**Slideshow setting** JPEG ON←→OFF	
⑯	**Slideshow timing** JPEG 0 sec–30 sec	

Audio/Subtitle language

ENG: English	SVE: Swedish	CHI: Chinese
FRA: French	NOR: Norwegian	KOR: Korean
DEU: German	DAN: Danish	MAL: Malay
ITA: Italian	POR: Portuguese	VIE: Vietnamese
ESP: Spanish	RUS: Russian	THA: Thai
NLD: Dutch	JPN: Japanese	✳: Others

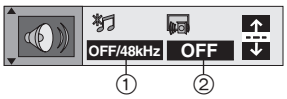
Unit information

Play menu



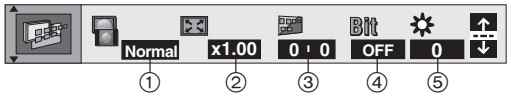
①	**A-B repeat** (➡ page 15) **RAM DVD-A DVD-V** VCD CD WMA MP3	[ENTER]
②	**Repeat mode** (➡ page 15) **RAM DVD-A DVD-V** JPEG	
③	**Play mode** (➡ page 17) **DVD-A** ---: Normal play PGM: Program play RND: Random play ALL: All group play	Display only
④	**Marker** **RAM DVD-A DVD-V** VCD CD WMA MP3 JPEG	➡ Page 18

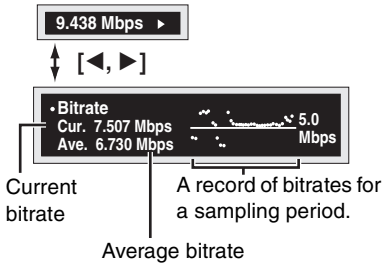
Audio menu



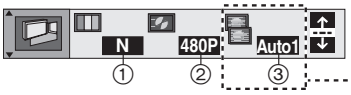
①	**Double re-master** (➡ page 28) **RAM DVD-A DVD-V** CD WMA MP3
②	**Dialogue Enhancer on/off DVD-V** **(Discs where the dialogue is recorded in the center channel)** This makes the dialogue in movies easier to hear.

Display menu



①	**4:3 Aspect** RAM DVD-A DVD-V VCD JPEG Select how to show images made for 4:3 aspect screens on a 16:9 aspect television. ●**Normal:** laterally stretches images made for a 4:3 screen. ●**Auto:** expands suitable 4:3 letterbox images to fill more of the screen. Other images appear in full in the center of the screen. ●**Shrink:** images appear in the center of the screen. ●**Zoom:** expands all images to fill the screen. If your television has a similar feature, use it instead for a better effect.
②	**Zoom** (➡ page 18) RAM DVD-A DVD-V VCD [ENTER] ↓ [◄, ►] ↓ [ENTER] **Making fine adjustments to the zoom ratio**
③	**Subtitle position/Subtitle brightness** DVD-A DVD-V ●Position (0 to −60): in 2 unit steps ●Brightness (Auto※/0 to −9) ※The brightness adjusts automatically against the background.
④	**Bitrate display on/off** RAM DVD-V VCD DVD-A (Motion picture parts only) During play: shows the bitrate (approximate values) of the video being played While paused: shows the data volume of the frame and type of picture (➡ page 35, Glossary—I/P/B) 
⑤	**OSD brightness** (−3 to +3) Adjust the brightness of the on-screen displays.

Picture menu



Only when "PROGRESSIVE" is on

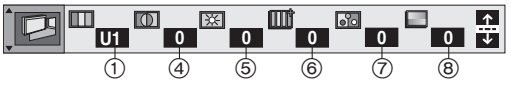
①	**Picture mode** RAM DVD-A DVD-V VCD JPEG ●**N:** Normal mode ●**S:** Soft mode (Soft picture with fewer video artifacts) ●**F:** Fine mode (Details are sharper) ●**C1:** Mellows images and enhances detail in dark scenes ●**C2:** Sharpens images and enhances detail in dark scenes ●**U1/U2:** User mode (➡ below)
②	**Video output mode** RAM DVD-A DVD-V VCD JPEG ●**480I:** Interlace video ●**480P:** Progressive video ("PROGRESSIVE" is on)
③	**Transfer mode** RAM DVD-A DVD-V VCD Select the method of conversion for progressive output to suit the type of material being played. ●**Auto 1 (normal):** for viewing film material ●**Auto 2:** for viewing film material (the same as Auto 1, but able to convert 30-frame-per-second progressive video) ●**Video:** for video material

To change the user mode

1 Select User mode and press [►] to highlight the number.

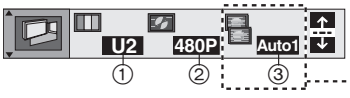
2 Press [▲, ▼] to select "1" or "2".

U1



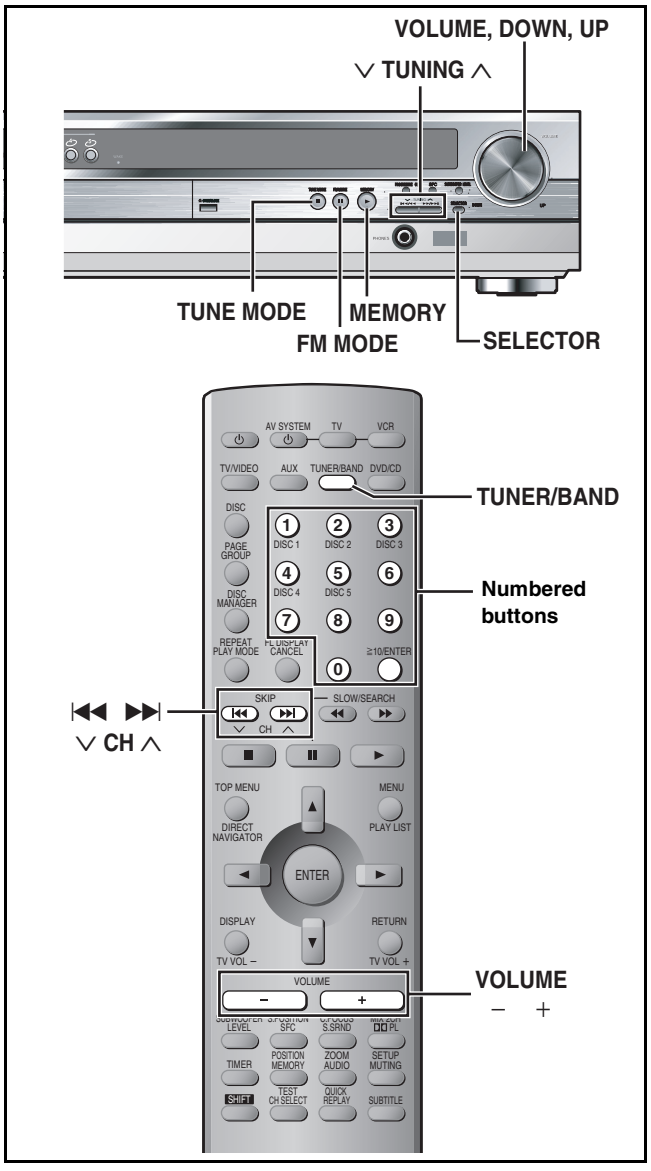
④	**Contrast** (−7 to +7) Increases the contrast between light and dark parts of the picture.
⑤	**Brightness** (0 to +15) Brightens the picture.
⑥	**Sharpness** (−7 to +7) Adjusts the sharpness of the edges of the horizontal lines.
⑦	**Color** (−7 to +7) Adjust the shade of the picture's color.
⑧	**Gamma** (0 to +5) Emphasis of outlines.

U2



Only when "PROGRESSIVE" is on

①–③ (➡ above)



Manual tuning

1 Press [SELECTOR] to select "FM" or "AM".

Each time you press the button:
DVD/CD→**FM**→**AM**→TV→VCR→AUX

●Remote control: Press [TUNER/BAND].

2 Press [TUNE MODE] to select "MANUAL".

Each time you press the button: MANUAL⟷PRESET

3 Press [∨ TUNING] or [TUNING ∧] to select the frequency of the required station.

TUNED: Displayed when a radio station is tuned.
STEREO: Displayed when a stereo FM broadcast is being received.

Press and hold [∨TUNING] or [TUNING∧] until the frequency starts scrolling to start automatic tuning. Tuning stops when a station is found.

4 Adjust the volume.

■ If noise is excessive in FM

Press [FM MODE] to display "MONO".

Press [FM MODE] again to cancel the mode.
The mode is also canceled when you changed the frequency.

■ FM frequency step

The step is factory-set to 0.2 MHz, but you can change it to receive broadcasts allocated 0.1-MHz steps.

1 Press [SELECTOR] to select "FM".
2 Press and hold [SELECTOR].
After a few seconds the display changes to show the current minimum frequency. Continue to hold the button down. The minimum frequency changes and the step is changed.

To return to the original step, repeat the above steps.

Note

Any FM/AM frequencies preset in channels will be changed by this procedure. Preset them again.

Preset tuning

Preset channels to make selection simple.
Up to 12 stations can each be set in the FM and AM bands.

Automatic presetting

1 Tune to "FM 87.9 MHz" or "FM 87.5 MHz" (➡ left).

2 Press and hold [MEMORY].

The FM stations the unit can receive are preset.

3 Tune to "AM 520 kHz".

4 Press and hold [MEMORY].

The AM stations the unit can receive are preset.
The last station to be preset is displayed when presetting finishes.

Manual presetting

1 Tune to the station (➡ left).

2 Press [MEMORY] twice.

3 Press [∨TUNING] or [TUNING∧] to select a channel.

4 Press [MEMORY].

The station occupying a channel is erased if another station is preset in that channel.

Selecting channels

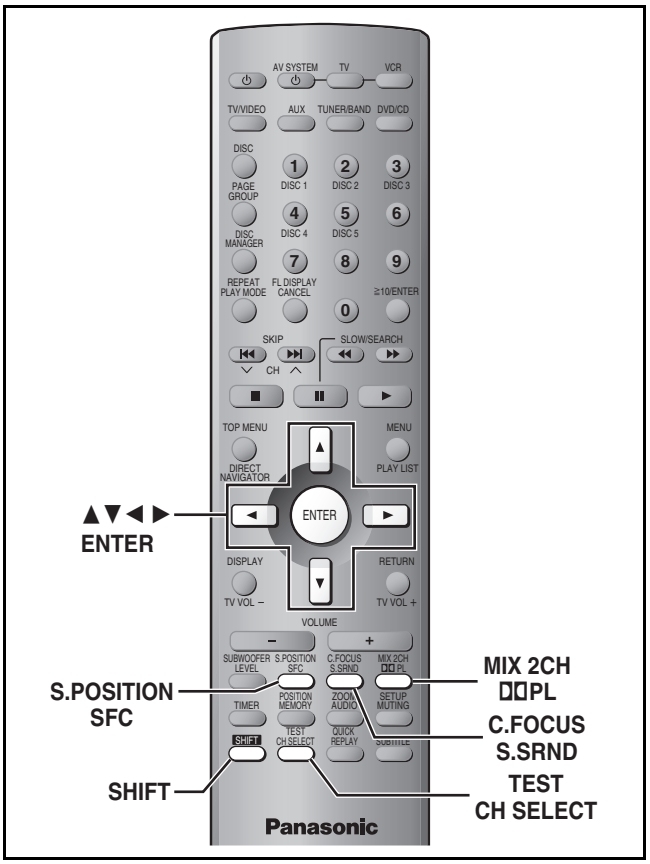
1 Press [TUNER/BAND] to select "FM" or "AM".

●Main unit: Press [SELECTOR].

2 Press the numbered buttons or [⏮, ∨ CH] or [⏭, CH ∧] to select the channel.

To select a 2-digit number

Example: To select channel 12, press [≧10] ➡ [1] ➡ [2]
●Main unit: Press [∨TUNING] or [TUNING∧] while "PRESET" is selected.



- Dolby Pro Logic, Super Surround, Center Focus, Seat Position and Subwoofer Level adjusting (➡ page 28) cannot be used if headphones are connected ("ERROR" appears on the display except Center Focus, Seat Position).
- You may experience a reduction in sound quality when these sound field systems are used with some sources. If this occurs, turn the sound field system off.

Dolby Digital and DTS

- Dolby Digital and DTS are digital encoding systems used on DVD to carry surround sound. Both were originally developed for use in cinemas.
- This unit automatically recognizes and decodes these systems.

Software encoded with Dolby Digital can be identified with this mark.

DOLBY DIGITAL

Software encoded with DTS can be identified with this mark.

DIGITAL dts SURROUND

Play a Dolby Digital or DTS source.

The Dolby Digital or DTS indicator lights.

To add power to the bass from the subwoofer ➡ page 28.

■ To down-mix Dolby Digital or DTS (multiple-channel) signals to 2 channels

Press [SHIFT]+[MIX 2CH] during play.
To cancel, press [SHIFT]+[MIX 2CH] again.

When "D.MIX" is flashing
The DVD-Audio disc you are playing contains multiple-channel signals that cannot be down-mixed ("NO DOWN-MIX" also appears).

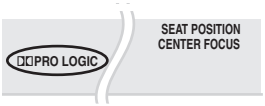
Dolby Pro Logic

Dolby Pro Logic is a decoding system that was developed to get a better sense of presence from sources encoded with Dolby Surround. The feeling of position has been improved by the addition of a separate center speaker channel.

Software encoded with Dolby Surround can be identified with this mark (DVD, CD, Video CD, Laser Disc, Video tape).

DOLBY SURROUND

1 Press [PL].



2 Play a Dolby Surround source.

To cancel
Press [PL] again.

Note
Turn Dolby Pro Logic off when playing a DVD recorded with Dolby Digital or DTS. The surround effects will not be reproduced correctly if this is left on.

Speaker level adjustments

If the level of the speakers appears to be different while listening to a source, adjust the level of the speakers to the same apparent level.

Preparation
DOLBY DIGITAL and DTS: Turn off the other sound field systems.
DOLBY PRO LOGIC: Press [PL].

1 **Remove the discs (or select an empty tray).**
2 **Press [SHIFT]+[TEST] to output a test signal.**
Lch: Front left (−16 dB to 0 dB)
Cch: Center (+6 dB to −10 dB)
Rch: Front right (−16 dB to 0 dB)
RSch: Right surround (+6 dB to −10 dB)
LSch: Left surround (+6 dB to −10 dB)
- The surround channel for Dolby Pro Logic is monaural so the indicator appears as "Sch" instead.

3 **Press [▲] (to increase) or [▼] (to decrease).**

To stop the test signal, press [SHIFT]+[TEST] again.

■ To adjust speaker level during play

1 **Press [CH SELECT] to select the speaker.**
Lch→Cch→Rch→RSch→LSch→SWch
↑_____↓
SWch: Subwoofer (+10 dB to −10 dB)
Dolby Pro Logic
- The surround channel is monaural so the indicator appears as "Sch" instead.
- "SWch" does not appear.

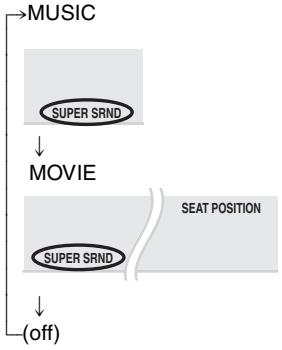
2 **Press [▲] (to increase) or [▼] (to decrease).**

Super Surround

Add surround effects to stereo sound.

Press [S.SRND] to select “MUSIC” or “MOVIE”.

Each time you press the button:



MUSIC: Adds surround effects to stereo sources.
MOVIE: Use this mode when playing movie software.

Note

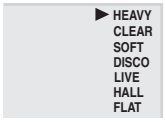
- Turn Super Surround off when playing a DVD recorded with Dolby Digital or DTS. The surround effects will not be reproduced correctly if this is left on.
- Dolby Pro Logic (➡ page 26) switches off.

To adjust the surround speaker level

While playing a source
① Press [CH SELECT].
② Press [▲] (to increase) or [▼] (to decrease).

Sound Field Control

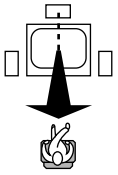
Press [SFC] to select a setting.



Each time you press the button:
HEAVY: Adds punch to rock.
CLEAR: Clarifies higher sounds.
SOFT: For background music.
DISCO: Reverberates sound to make you feel like you were in a disco.
LIVE: Makes vocals more alive.
HALL: Expands sound to make you feel like you were in a hall.
FLAT: Canceled (no effect is added). (factory preset)

Center Focus

You can make the sound of the center speaker seem like it is coming from within the television.



Press [SHIFT]+[C. FOCUS].

Each time you press the button:
CENTER FOCUS 1⟶CENTER FOCUS 2⟶OFF

The CENTER FOCUS 2 enhances the effect and make it easier to hear dialogue even at low volume.

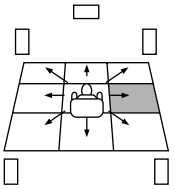
- This does not work when Super Surround is turned on.
- This will have less effect when Dolby Pro Logic is turned on.

To cancel

Press [SHIFT]+[C.FOCUS] to clear “►”.

Seat position

Using this function makes you feel like you are sitting in the ideal seating position (in the center of the circle formed by the speakers), even if you cannot due to the layout of your room.



1 Press [SHIFT]+[S.POSITION].

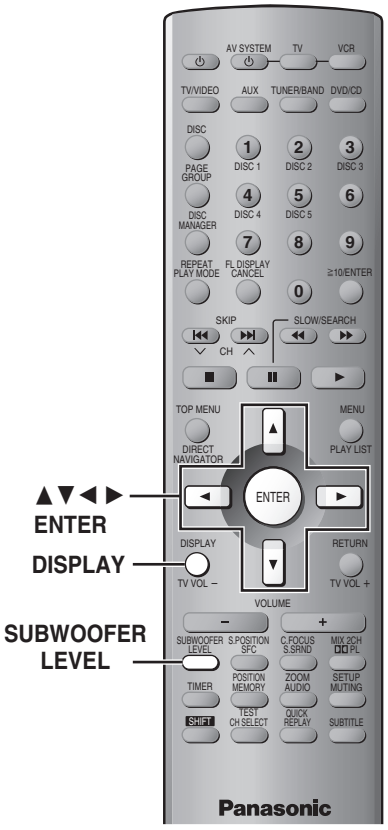
2 While “►” is flashing

Press [▲, ▼, ◄, ►] to select a position.

- This does not work when Super Surround “MUSIC” is turned on.

To cancel

Press [SHIFT]+[S.POSITION] to clear “►”.



Adjusting the bass

Press [SUBWOOFER LEVEL].

Each time you press the button:
SUB W 1→SUB W 2→SUB W 3→SUB W 4 (factory preset)

Double re-master—Enjoying more natural sound

RAM DVD-A DVD-V CD

Discs recorded with 2-channel LPCM at 44.1 kHz or 48 kHz

This feature gives you a more natural sound by adding the higher frequency signals not recorded on the disc.

WMA MP3

Discs recorded at 44.1 kHz or 48 kHz

This feature reproduces the frequencies lost during recording to give you a sound closer to the original.

1 **During play**

Press [DISPLAY] until the unit information screen is displayed

(➡ page 23).

2 Press [▲, ▼] to select the audio menu.

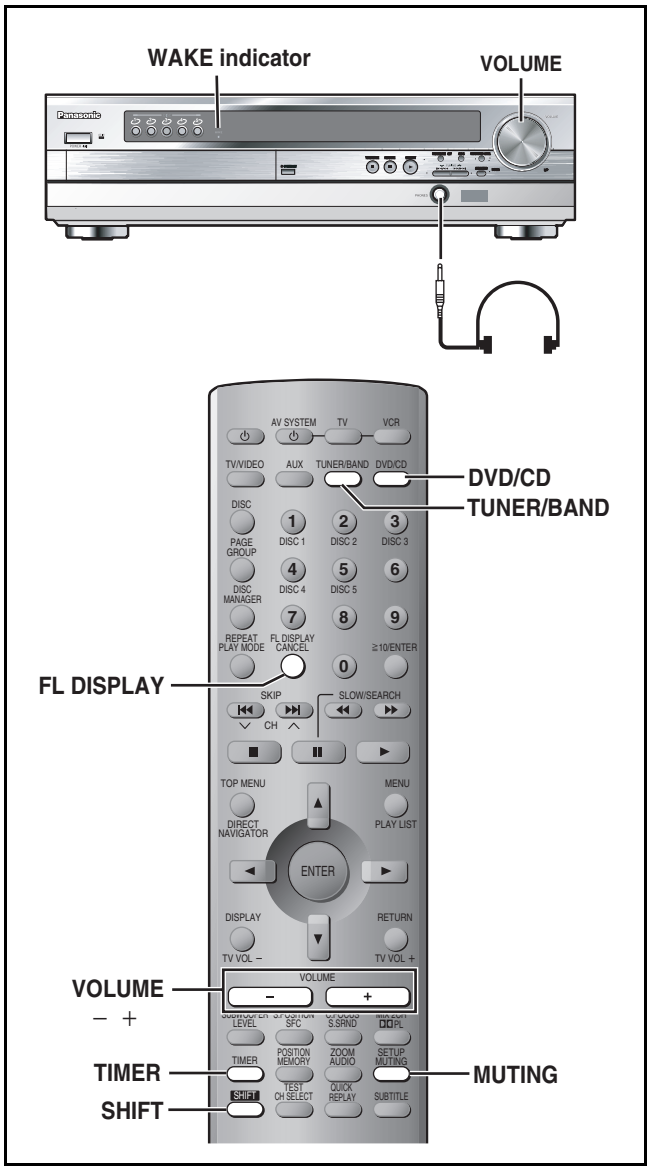
Double Re-master

3 Press [◄, ►] to select “Double Re-master”.

4 Press [▲, ▼].

Each time you press the button:

Setting	RAM DVD-A DVD-V CD Type of music	WMA MP3 Effect level
1	High tempo (e.g., pops and rock)	Light
2	Various tempos (e.g., jazz)	Medium
3	Low tempo (e.g., classical)	Strong
OFF	Off	Off



Muting the volume

Press [MUTING].

Volume is reduced to minimum.

To cancel
Press [MUTING] again or reduce the volume to minimum (–– dB), then raise it to the required level.
Muting is also canceled when you switch the unit to standby.

Turning off the display

The display and all indicators, except for the AC supply indicator, are turned off for better television viewing.

Press [SHIFT]+[FL DISPLAY].

To cancel
Press [SHIFT]+[FL DISPLAY] again.

Timer functions

The SLEEP timer can turn the unit off after a set time and the WAKE timer can turn it on. You can use only one timer at a time.

Preparation
Select the desired source.
- Disc
  Press [DVD/CD] to display “DVD/CD”, and insert an Audio CD, etc.
- The radio
  Press [TUNER/BAND] to select “FM” or “AM” and tune in the desired station.

1 Press [TIMER] to select the timer.

Each time you press the button:
SLEEP ⟶ WAKE ⟶ OFF

2 Within 5 seconds,

Press and hold [TIMER] and release when the timer you require is displayed.

The display changes as follows:
- **SLEEP (in minutes)**
  30 ⟶ 60 ⟶ 90
- **WAKE (in hours)**
  5H ⟶ 7H ⟶ 9H
- SLEEP starts working immediately.
- WAKE starts working when you switch the unit to standby. (The “WAKE” indicator lights up.)

To cancel the timer
Press [TIMER] to select “OFF”.

To check the setting
Press [TIMER] once.
- If you set SLEEP, the time remaining appears.
- If you set WAKE, the setting appears.

To change the setting
Repeat the procedure from the beginning.

Using headphones

1 Reduce the volume and connect the headphones (not included).

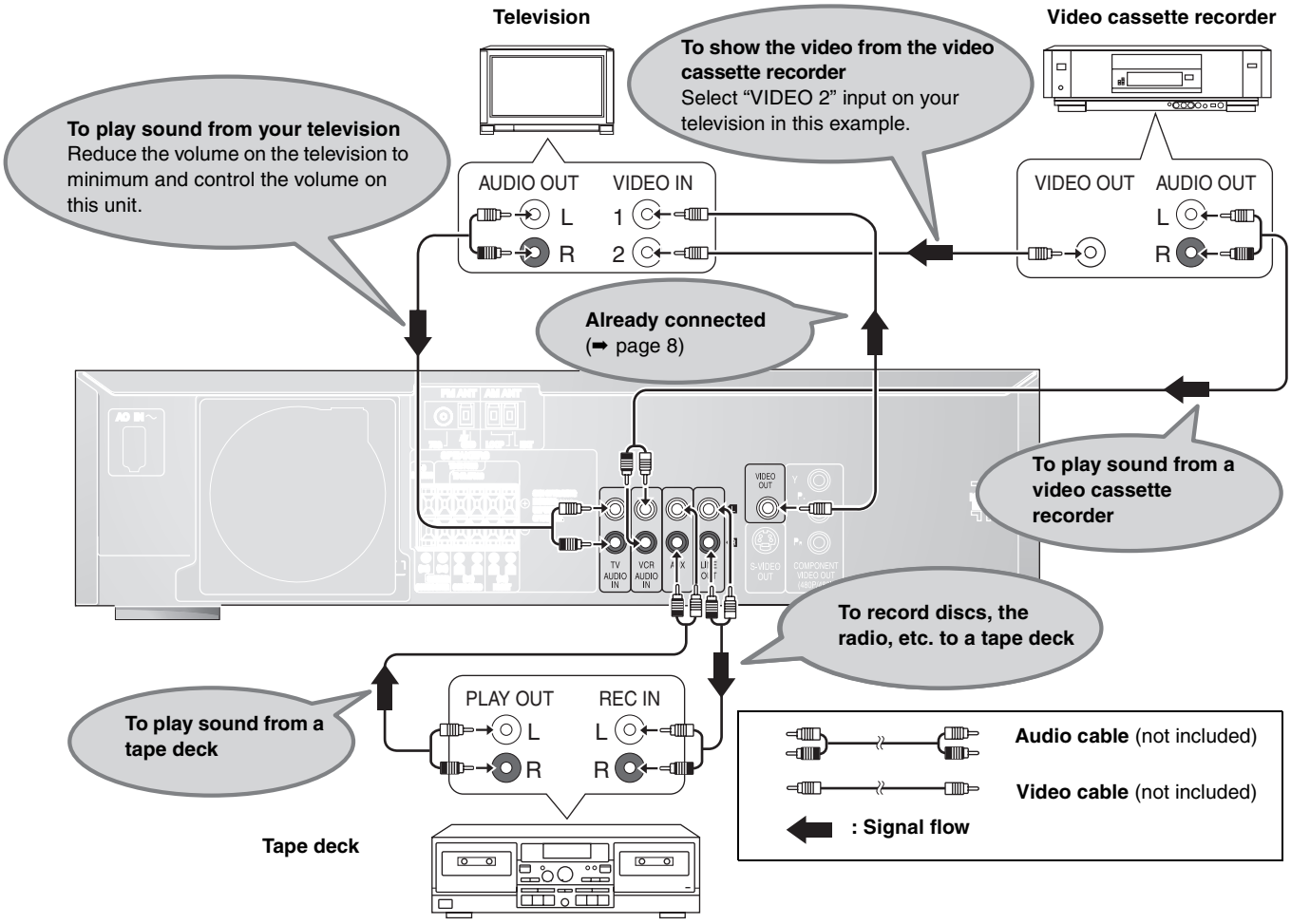
Headphone plug type: 6.3 mm (1/4″) stereo

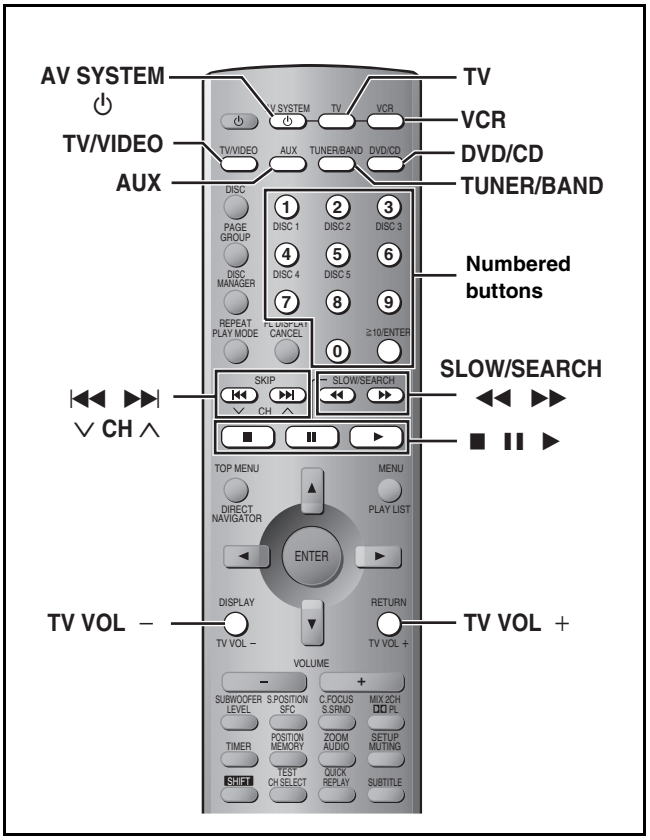
2 Adjust headphone volume with [VOLUME].

Audio is automatically switched to stereo (2-channel).

Note
Avoid listening for prolonged periods of time to prevent hearing damage.

Connection example


Television
Video cassette recorder
To play sound from your television
Reduce the volume on the television to minimum and control the volume on this unit.
To show the video from the video cassette recorder
Select "VIDEO 2" input on your television in this example.
AUDIO OUT
VIDEO IN
L
R
1
2
VIDEO OUT
AUDIO OUT
Already connected
(➡ page 8)
To play sound from a video cassette recorder
To record discs, the radio, etc. to a tape deck
To play sound from a tape deck
PLAY OUT
REC IN
Tape deck
Audio cable (not included)
Video cable (not included)
: Signal flow



Operating the television and the video cassette recorder

You can use the remote control to operate a Panasonic television or a video cassette recorder. (Some models cannot be operated by this remote control.)

Television

Preparation

- Face the remote control at this unit and press [TV]. The button lights and "TV" appears on the unit's display. You can operate the television.
- Face the remote control at the television for the following operations.

Turning the television on/off

Press [⏻ AV SYSTEM].

Switching the television's video input mode

Press [TV/VIDEO].

Changing channels

Press [|◀◀, ∨ CH] or [▶▶|, CH ∧], or numbered buttons.

- [≧10/ENTER] is used to confirm channel selection on some televisions manufactured by other companies.

Adjusting the volume

Press [TV VOL+] or [TV VOL−].

Video cassette recorder

Preparation

- Face the remote control at this unit and press [VCR]. The button lights and "VCR" appears on the unit's display. You can operate the video cassette recorder.
- Change the video input mode on the television ("VIDEO 2" in the example).
- Face the remote control at the video cassette recorder for the following operations.

Turning the video cassette recorder on/off

Press [⏻ AV SYSTEM].

Play, pause and stop

Press [▶], [❚❚] or [■].

Fast forward and rewind

Press [◀◀] or [▶▶].

You can connect a laser disc or record player instead of a video cassette recorder.

Connect as shown on page 30 and select "VCR" as the source.

When connecting a record player

We recommend using a record player with a built-in phono equalizer. If your player doesn't have a built-in equalizer, connect it first to a separate equalizer and then connect that to this unit.

Changing the remote control code

This remote control can also operate some other brands of televisions and video cassette recorders. Change the code to operate such equipment and some Panasonic products.

While aiming the remote control at the equipment,

Press and hold [TV] or [VCR],

Press a numbered button to enter the first digit,

Press a numbered button to enter the second digit.

The remote control outputs the on/off signal.
If the code is correct, the equipment turns on or off.
If it doesn't, try entering another code.

- Note that this remote control cannot operate some equipment and that it may not be able to perform some operations.
- Reenter the codes after you change the batteries.

Television code list

Panasonic:	01, 02, 26	Philco:	06, 07
Sony:	04	Philips:	06
Fisher:	14	Pioneer:	02, 10, 19
G-E:	02, 03, 07, 09	Quasar:	02
Gold Star:	07, 15	RCA:	03, 07, 09, 13, 23, 24, 25
Hitachi:	05, 07	Sanyo:	14
JVC:	12	Sharp:	08, 21
LXI:	03, 06, 07, 10, 14, 15	Sylvania:	06, 07, 15
Magnavox:	06, 07, 11, 15, 22	Symphonic:	17
Mitsubishi:	07, 15, 16, 21	Toshiba:	10, 21
NEC:	07, 15	Zenith:	18, 20

Video cassette recorder code list

Panasonic:	01, 02, 09, 33	NEC:	19, 25, 31, 38
Sony:	05, 06, 07, 35, 36, 37	Philco:	02, 09, 12, 30
Fisher:	13, 14, 15, 18, 34	Philips:	02, 09, 12
Funai:	08, 30	Pioneer:	09
G-E:	02, 03, 11	Quasar:	01, 02, 09, 33
Gold Star:	27	RCA:	02, 03, 04, 09, 10, 11, 12, 23, 24, 26
Hitachi:	09, 10, 11	Sanyo:	14, 18, 34
JVC:	19, 25, 31, 38, 39, 40	Sharp:	16, 17
LXI:	10, 13, 14, 15, 18, 27, 30	Shintom:	32
Magnavox:	02, 09, 12	Sylvania:	02, 09, 12, 30
Mitsubishi:	21, 22, 28, 29	Symphonic:	30
		Toshiba:	23, 24
		Zenith:	20

Operating the tape deck

Listening to the tape deck

Press [AUX] to select "AUX" as the source.

Recording to the tape deck

1 ●<u>Disc</u>

Press [DVD/CD] to select "DVD/CD".

●<u>The radio</u>

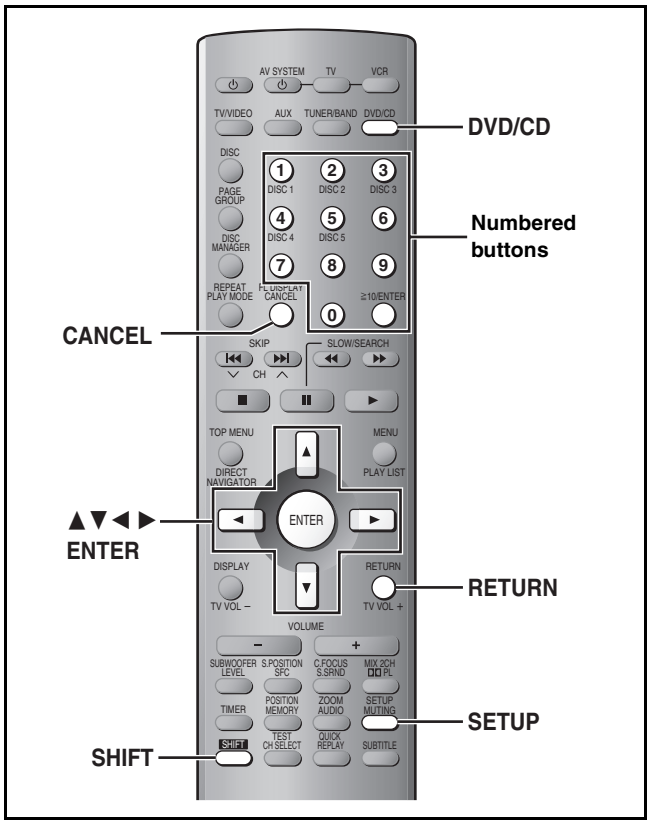
Press [TUNER/BAND] to select "FM" or "AM".

2 **Start recording and play.**

This chart shows the settings for this unit. Change the settings to suit your preferences and to suit the unit to the environment in which it is being used. These settings are retained in memory until they are changed, even if the unit is turned off. See page 33 for details on menu operation.

●Underlined items are the factory preset.

Menus	Items	Options
Disc	**Audio** Choose the preferred audio language.	English French Spanish Original Other ∗∗∗∗ Original: The original language of each disc will be selected. Other ∗∗∗∗: Input a code number with the numbered buttons (➡ page 34).
	Subtitle Choose the preferred subtitle language.	Automatic English French Spanish Other ∗∗∗∗ Automatic: If the language selected for "Audio" is not available, subtitles of that language will automatically appear if available on that disc.
	Menus Choose the preferred language for disc menus.	English French Spanish Other ∗∗∗∗
	Ratings (➡ page 33) Set a ratings level to limit DVD-Video play. ●The password screen is shown if you choose levels 0 to 7 or if you choose "Ratings" when levels 0 to 7 have been selected. ●Select "Level 0" to prevent play of discs that do not have ratings levels recorded on them.	**Setting ratings (When level 8 is selected)** 8 No Limit: All DVD-Video can be played. 1 to 7: Prohibits play of DVD-Video with corresponding ratings recorded on them. 0 Lock All: Prohibits play of all DVD-Video. **Changing ratings (When level 0–7 is selected)** Unlock Player Change Level Change Password Temporary Unlock
Video	**TV Aspect** (➡ page 10) Choose the setting to suit your television and preference.	4:3 Pan&Scan 4:3 Letterbox 16:9
	TV Type (➡ page 10) Select to suit the type of television.	Standard (Direct View TV) CRT Projector LCD TV/Projector Projection TV Plasma TV
	Still Mode Specify the type of picture shown when paused.	Automatic Field Frame
	Black Level Control Change the black level of the picture if you connected a television through the COMPONENT VIDEO OUT terminals.	Lighter: when connected to a TV through the VIDEO OUT or S-VIDEO OUT terminal. Darker: when connected to a TV through the COMPONENT VIDEO OUT ($Y/P_B/P_R$) terminals.
Audio	**Speaker Setting** (➡ page 33) Set the delay time for your center and surround speakers.	Multi-channel Center: 0/1.3/2.6/3.9/5.3 ms Surround (L/R): 0/5.3/10.6/15.9 ms
	Dynamic Range Compression (Dolby Digital only) Change the dynamic range for late night viewing.	Off On: For clear dialog when listening at low volume.
	Audio during Search Choose whether to have sound during search.	On Off ●This feature doesn't work for some discs.
Display	**Menu Language** Choose the preferred language for these menus and the on-screen messages.	English Français Español
	On-Screen Messages Choose whether to show on-screen messages or not.	On Off
Others	**HighMAT** Play HighMAT discs as HighMAT discs, or as regular WMA/MP3/JPEG discs. (Reload the disc for the setting to be effective.)	Enable: Play HighMAT discs as HighMAT discs. Disable: Play HighMAT discs as regular WMA/MP3/JPEG discs.
	Mixed Disc—Audio & Stills Select the type of file played on discs containing both JPEG and WMA/MP3. (Reload the disc for the setting to be effective.)	Audio (MP3/WMA) Stills (JPEG)
	DVD-Video Mode Select how to play pictures contained on some DVD-Audio. The setting returns to "Off" when you remove the disc, turn the unit off or change the source.	Off: DVD-Audio are played as DVD-Audio. On: DVD-Video contents found on DVD-Audio can be played.
	QUICK SETUP (➡ page 10) Answer questions to make basic settings.	Yes (Menu language, Audio language, Subtitle language, TV type, TV aspect) No

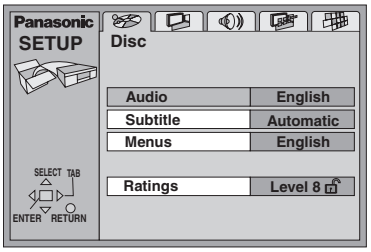


Common procedures

See page 32 for menu and option details.

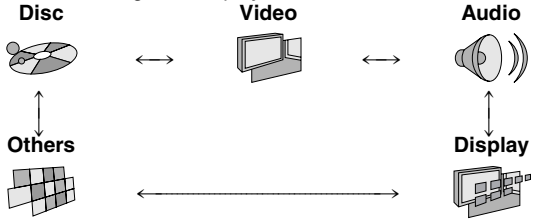
Preparation
Press [DVD/CD].

1 Press [SHIFT]+[SETUP] to show the menus.



2 Press [◄, ►] to select the menu's tab.

The screen changes to display the menu.



3 Press [▲, ▼] to select the item you want to change and press [ENTER].

4 Press [▲, ▼, ◄, ►] to select the option and press [ENTER].

The screen now shows the menu again.

To return to the previous screen
Press [RETURN].

When you are finished
Press [SHIFT]+[SETUP].

Entering a password (Ratings)

DVD-V

The password screen is shown when you select levels 0 to 7.

1 Input a 4-digit password with the numbered buttons and press [ENTER].
- If you enter a wrong number, press [CANCEL] to erase it before you press [ENTER].
- The lock symbol appears closed to show the rating is locked.
- **Do not forget your password.**

2 Press [ENTER] to confirm the 4 digits.

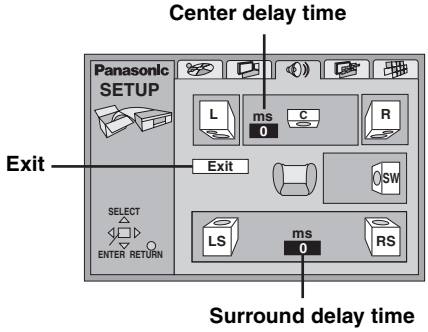
Now, when you insert a DVD-Video that exceeds the ratings limit you set, a message appears on the television.
Follow the on-screen instructions.

Changing the delay time (Speaker Setting)

DVD-V

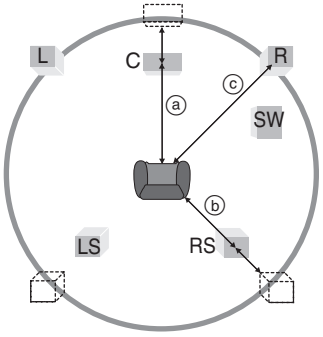
(Dolby Digital, center and surround speakers only)

For optimum listening with 5.1-channel sound, all the speakers, except for the subwoofer, should be the same distance from the seating position. If you have to place the center or surround speakers closer to the seating position, adjust the delay time to make up for the difference.



1 Press [▲, ▼] to select the delay time box and press [ENTER].
2 Press [▲, ▼] to adjust the delay time and press [ENTER].

Values
If distance ⓐ or ⓑ is greater than or equal to distance ⓒ, set to "0".
If distance ⓐ or ⓑ is less than distance ⓒ, set as follows.



ⓐ **Center speaker**

Difference	Setting
Approx. 50 cm (1 1/2 feet)	1.3 ms
Approx. 100 cm (3 feet)	2.6 ms
Approx. 150 cm (5 feet)	3.9 ms
Approx. 200 cm (6 feet)	5.3 ms

ⓑ **Surround speakers**

Difference	Setting
Approx. 200 cm (6 feet)	5.3 ms
Approx. 400 cm (12 feet)	10.6 ms
Approx. 600 cm (18 feet)	15.9 ms

When you are finished
Press [◄] to select "Exit" and press [ENTER].

Language code list

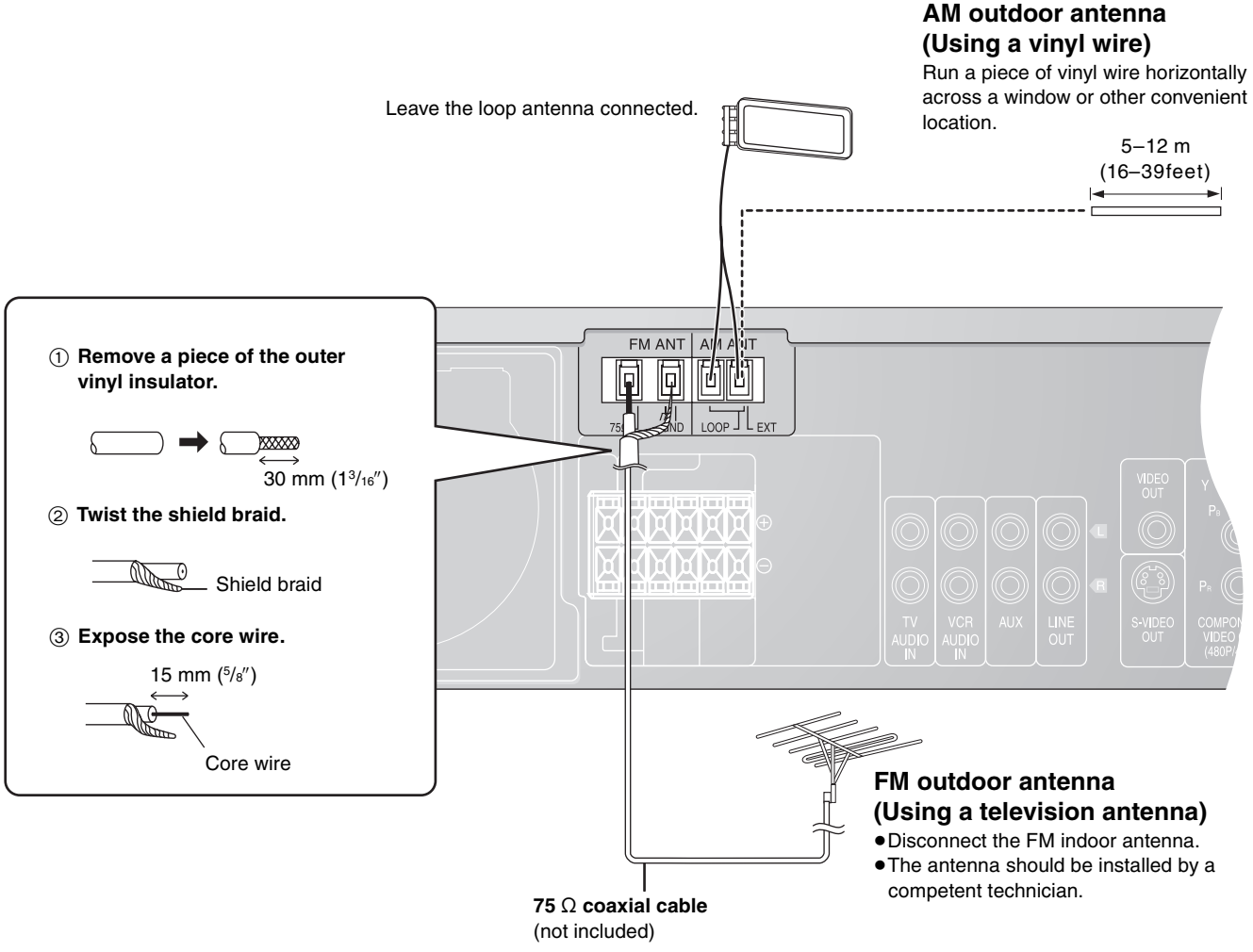
Abkhazian:	6566	Chinese:	9072	Hausa:	7265	Lithuanian:	7684	Romanian:	8279	Telugu:	8469
Afar:	6565	Corsican:	6779	Hebrew:	7387	Macedonian:	7775	Russian:	8285	Thai:	8472
Afrikaans:	6570	Croatian:	7282	Hindi:	7273	Malagasy:	7771	Samoan:	8377	Tibetan:	6679
Albanian:	8381	Czech:	6783	Hungarian:	7285	Malay:	7783	Sanskrit:	8365	Tigrinya:	8473
Ameharic:	6577	Danish:	6865	Icelandic:	7383	Malayalam:	7776	Scots Gaelic:	7168	Tonga:	8479
Arabic:	6582	Dutch:	7876	Indonesian:	7378	Maltese:	7784	Serbian:	8382	Turkish:	8482
Armenian:	7289	English:	6978	Interlingua:	7365	Maori:	7773	Serbo-Croatian:	8372	Turkmen:	8475
Assamese:	6583	Esperanto:	6979	Irish:	7165	Marathi:	7782	Shona:	8378	Twi:	8487
Aymara:	6588	Estonian:	6984	Italian:	7384	Moldavian:	7779	Sindhi:	8368	Ukrainian:	8575
Azerbaijani:	6590	Faroese:	7079	Japanese:	7465	Mongolian:	7778	Singhalese:	8373	Urdu:	8582
Bashkir:	6665	Fiji:	7074	Javanese:	7487	Nauru:	7865	Slovak:	8375	Uzbek:	8590
Basque:	6985	Finnish:	7073	Kannada:	7578	Nepali:	7869	Slovenian:	8376	Vietnamese:	8673
Bengali; Bangla:	6678	French:	7082	Kashmiri:	7583	Norwegian:	7879	Somali:	8379	Volapük:	8679
Bhutani:	6890	Frisian:	7089	Kazakh:	7575	Oriya:	7982	Spanish:	6983	Welsh:	6789
Bihari:	6672	Galician:	7176	Kirghiz:	7589	Pashto, Pushto:	8083	Sundanese:	8385	Wolof:	8779
Breton:	6682	Georgian:	7565	Korean:	7579	Persian:	7065	Swahili:	8387	Xhosa:	8872
Bulgarian:	6671	German:	6869	Kurdish:	7585	Polish:	8076	Swedish:	8386	Yiddish:	7473
Burmese:	7789	Greek:	6976	Laotian:	7679	Portuguese:	8084	Tagalog:	8476	Yoruba:	8979
Byelorussian:	6669	Greenlandic:	7576	Latin:	7665	Punjabi:	8065	Tajik:	8471	Zulu:	9085
Cambodian:	7577	Guarani:	7178	Latvian, Lettish:	7686	Quechua:	8185	Tamil:	8465		
Catalan:	6765	Gujarati:	7185	Lingala:	7678	Rhaeto-Romance:	8277	Tatar:	8484		

Optional antenna connections

Use outdoor antennas if radio reception is poor.

Note

Disconnect the antenna when the unit is not in use.
Do not use the outdoor antenna during an electrical storm.



Glossary

Decoder
A decoder restores the coded audio signals on DVDs to normal. This is called decoding.

Dolby Digital
This is a method of coding digital signals developed by Dolby Laboratories. Apart from stereo (2-channel) audio, these signals can also be multi-channel audio. A large amount of audio information can be recorded on one disc using this method.

DTS (Digital Theater Systems)
This surround system is used in many movie theaters around the world. There is good separation between the channels, so realistic sound effects are possible.

Dynamic range
Dynamic range is the difference between the lowest level of sound that can be heard above the noise of the equipment and the highest level of sound before distortion occurs.

Film and video
DVD-Videos are recorded using either film or video. Usually, film is recorded at 24 frames per second, the rate movies are filmed at, while video is recorded at 30 frames per second.

Frame still and field still
Frames are the still pictures that go together to make a moving picture. There are about 30 frames shown each second.
One frame is made up of two fields. A regular television shows these fields one after the other to create frames.
A still is shown when you pause a moving picture. A frame still is made up of two alternating fields, so the picture may appear blurred, but overall quality is high.
A field still is not blurred, but it has only half the information of a frame still so picture quality is lower.

Interlace and progressive output
NTSC, the video signal standard, has 480 interlaced (I) scan lines, whereas progressive scanning uses twice the number of scan lines. This is called 480P. The video signals output from this unit's COMPONENT VIDEO OUT terminals (Y, P_B, P_R) allow you to enjoy higher quality pictures than if the signals were output from the VIDEO OUT terminal or S-VIDEO OUT terminal.

I/P/B
MPEG 2, the video compression standard adopted for use with DVD-Video, codes frames using these 3 picture types.
I: Intra coded picture
This picture has the best quality and is the best to use when adjusting the picture.
P: Predictive coded picture
This picture is calculated based on past I or P-pictures.
B: Bidirectionally-predictive coded picture
This picture is calculated by comparing past and future I and P-pictures so it has the lowest volume of information.

Linear PCM (pulse code modulation)
These are uncompressed digital signals, similar to those found on CDs.

Playback control (PBC)
If a Video CD has playback control, you can select scenes and information with menus.

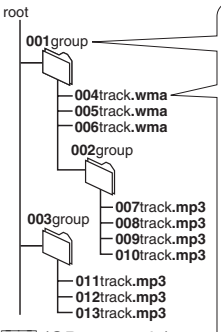
WMA, MP3, CD text and JPEG information
- Discs must conform to ISO9660 level 1 or 2 (except for extended formats).
- This unit is compatible with multi-session but if there are a lot of sessions it takes more time for play to start. Keep the number of sessions to a minimum to avoid this.
- The order tracks appear in the menus may differ to the order shown on your computer.

WMA
- Noise may occur when playing WMA files.
- You cannot play WMA files that are copy protected.

MP3
- This unit is not compatible with ID3 tags.
- If you play an MP3 track that includes still picture data, it will take some time before the music itself starts playing and the elapsed time will not be displayed during this time. Even after the track starts, the correct play time will not be displayed.

JPEG
- To view JPEG files on this unit:
  — Take them on a digital camera that meets the DCF (Design rule for Camera File System) standard. Some digital cameras have functions that are not supported by the DCF standard like automatic picture rotation which may render a picture unviewable.
  — Do not alter the files in any way or save them under a different name.
- This unit cannot display moving pictures, Motion JPEG and other such formats, still pictures other than JPEG (i.e. TIFF) or play associated sound.

Order of play
WMA **MP3** **JPEG**



Naming folders and files
Prefix folder and file names with 3-digit numbers in the order you want to play them.

Extension
004track.wma (or .WMA)

The extension for MP3 is **".mp3"** or **".MP3"**.
The extension for JPEG is **".JPG"**, **".jpg"**, **".JPEG"** or **".jpeg"**.

CD (CD text only)
When making your own CD text discs
The unit plays the tracks in the order you record them so you do not have to prefix the titles with numbers.

Windows Media, and the Windows logo are trademarks, or registered trademarks of Microsoft Corporation in the United States and/or other countries.

WMA is a compression format developed by Microsoft Corporation. It achieves the same sound quality as MP3 with a file size that is smaller than that of MP3.

Designed for Windows Media™

MPEG Layer-3 audio decoding technology licensed from Fraunhofer IIS and Thomson multimedia.

Maintenance

To clean this unit, wipe with a soft, damp cloth.
- Never use alcohol, paint thinner or benzine to clean this unit.
- Before using chemically treated cloth, read the instructions that came with the cloth carefully.

Before moving the unit, ensure the disc trays are empty.
Failure to do so will risk severely damaging the discs and the unit.

Specifications

AMPLIFIER SECTION

RMS Output Power: Dolby Digital Mode, 10 % Total Harmonic Distortion

1 kHz Front CH	46 W per channel (6 Ω)
1 kHz Surround CH	56 W per channel (6 Ω)
1 kHz Center CH	106 W per channel (6 Ω)
100 Hz Subwoofer CH	190 W per channel (6 Ω)
Total RMS Dolby Digital Mode Power	500 W

FTC Output Power: Dolby Digital Mode, 1.0 % Total Harmonic Distortion

120 Hz–20 kHz Front CH	30 W per channel (6 Ω)
120 Hz–20 kHz Surround CH	38 W per channel (6 Ω)
120 Hz–20 kHz Center CH	80 W per channel (6 Ω)
45 Hz–120 Hz Subwoofer CH	144 W per channel (6 Ω)
Total FTC Dolby Digital Mode Power	360 W
Input sensitivity/input impedance	
AUX	250 mV, 10 kΩ

FM TUNER SECTION

Frequency range	87.9–107.9 MHz (200 kHz-step) 87.5–108.0 MHz (100 kHz-step)
Antenna terminals	75 Ω (unbalanced)
Preset station	12

AM TUNER SECTION

Frequency range	520–1710 kHz (10 kHz-step)
AM Sensitivity S/N 20 dB at 1000 kHz	560 µV/m
Preset station	12

DISC SECTION

Discs played [8 cm (3″) or 12 cm (5″)]

(1) DVD-RAM (DVD-VR formatted disc)
(2) DVD-Audio
(3) DVD-Video
(4) DVD-R (DVD-Video formatted disc)
(5) CD-Audio (CD-DA)
(6) Video CD
(7) SVCD (Conforming to IEC62107)
(8) CD-R/CD-RW (CD-DA, Video-CD formatted disc)
(9) MP3/WMA
- Maximum number of tracks and groups recognizable: 999 tracks and 99 groups
- Compatible compression rate: MP3: between 32 kbps and 320 kbps WMA: between 48 kbps and 192 kbps

(10) JPEG
- Exif Ver 2.1 JPEG Baseline files
- Maximum number of pictures and groups recognizable: 3000 pictures and 300 groups
- Picture resolution: between 320×240 and 6144×4096 pixels (Sub sampling is 4:2:2 or 4:2:0)

(11) HighMAT Level 2 (Audio and Image)

Video

Signal system		NTSC
Output level	Composite video	1 Vp-p (75 Ω)
	S-video Y	1 Vp-p (75 Ω)
	C	0.286 Vp-p (75 Ω)
	Component video (Y: green, P_B: blue, P_R: red)	
	Y output level	1 Vp-p (75 Ω)
	P_B output level	0.7 Vp-p (75 Ω)
	P_R output level	0.7 Vp-p (75 Ω)

Audio

Sampling frequency	
CD	44.1 kHz
MP3	44.1 kHz, 48 kHz
DVD (Linear Audio)	48 kHz, 96 kHz
DVD-Audio	192 kHz
Decoding	16/20/24 bit linear
Number of channels	5.1 ch (FL, FR, SL, SR, C, SW)
Frequency response	20 Hz–20 kHz (+1, −2 dB)
Pick up	
Beam Source	Semiconductor Laser
Wavelength	
CD/VCD	780 nm
DVD	658 nm
Wow and flutter	Less than possible measurement data
D/A converter	Delta sigma DAC

SPEAKER SECTION

Front and Surround speakers SB-AFC650

Type	1 way 1 speaker Bass-ref.
Speaker unit	
Full range	8 cm ($3^{1}/_{8}$″) cone type, 6 Ω
Input power	60 W (Music)
Output sound pressure level	79 dB/W (1.0 m)
Frequency range	80 Hz–22 kHz (−16 dB) 110 Hz–20 kHz (−10 dB)
Dimensions (W×H×D)	88×135×117 mm ($3^{15}/_{32}$″×$5^{5}/_{16}$″×$4^{19}/_{32}$″)
Mass	0.8 kg (1 lb.)

Center speaker SB-PC650

Type	2 way 2 speaker Bass-ref.
Speaker unit	
Woofer	10 cm (4″) cone type, 6 Ω
Tweeter	6 cm ($2^{3}/_{8}$″) cone type, 6 Ω
Input power	110 W (Music)
Output sound pressure level	83 dB/W (1.0 m)
Crossover frequency	4 kHz
Frequency range	67 Hz–22 kHz (−16 dB) 92 Hz–20 kHz (−10 dB)
Dimensions (W×H×D)	207×115×148 mm ($8^{5}/_{32}$″×$4^{17}/_{32}$″×$5^{13}/_{16}$″)
Mass	1.5 kg (3.3 lb.)

Subwoofer SB-W650

Type	1 way 1 speaker Bass-ref.
Speaker unit	
Woofer	17 cm ($6^{3}/_{4}$″) cone type, 6 Ω
Input power	200 W (Music)
Output sound pressure level	80 dB/W (1.0 m)
Frequency range	42 Hz–1.5 kHz (−16 dB) 46 Hz–900 Hz (−10 dB)
Dimensions (W×H×D)	173×372×302 mm ($6^{13}/_{16}$″×$14^{21}/_{32}$″×$11^{7}/_{8}$″)
Mass	4.3 kg (9.5 lb.)

GENERAL

Power supply	AC 120V, 60 Hz
Power consumption	190 W
Dimensions (W×H×D)	430×114×368 mm ($16^{15}/_{16}$″×$4^{1}/_{2}$″×$14^{1}/_{2}$″)
Mass	8.2 kg (18.1 lb.)

Power consumption in standby mode (approx.)	0.5 W

Note

1. Specifications are subject to change without notice. Mass and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

Troubleshooting guide

Before requesting service, make the below checks. If you are in doubt about some of the check points, or if the remedies indicated in the chart do not solve the problem, ***contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or the website (http://www.panasonic.com).***

Power

		Page
No power.	●Insert the AC power supply cord securely into the household AC outlet.	**9**
The unit is automatically switched to the standby mode.	●The unit was switched to standby by the sleep timer.	**29**

Operation

No response when buttons pressed.	●Some operations may be prohibited by the disc. ●The unit may not be operating properly due to lightning, static electricity or some other external factor. **Reset procedure:** Press [⏻] to switch the unit to the standby mode and then back to ON. Alternatively, press [⏻] to switch the unit to the standby mode, disconnect the AC power supply cord, and then reconnect it.	**—** **—**
No operations can be performed with the remote control.	●Check that the batteries are installed correctly. ●The batteries are depleted: Replace them with new ones. ●Point the remote control at the remote control sensor and operate.	**9** **9** **—**
Cannot switch on the television with the remote control.	●Press [TV] first to operate the television.	**—**
Play doesn't start (or stops immediately) when you press [►] (play).	●Condensation has formed: Wait 1 to 2 hours for it to evaporate. ●This unit cannot play discs other than the ones listed in these operating instructions. ●This unit cannot play DVD-Video with a region number other than "1", "ALL" or multiple region numbers including "1". ●The disc may be dirty and may require cleaning. ●Ensure that the disc is installed with the label of the side to be played facing upwards. ●Check that the DVD-RAM has something recorded on it.	**—** **5** **Cover** **5** **12** **—**
Cannot select alternative languages.	●This function is dependent on software availability. ●Try selecting from the disc's menu if one is available.	**—** **12**
No menu play.	●This function is dependent on software availability.	**—**
No subtitles.	●This function is dependent on software availability. ●Subtitles are cleared from the television. Display the subtitles.	**—** **16**
The position of the subtitles is incorrect.	●Change the position of the subtitles with "Subtitle Position" in the on-screen icon menus.	**24**
Soundtrack and/or subtitle language is not the one selected with the SETUP menus.	●This function is dependent on software availability.	**—**
Cannot change angle.	●This function is dependent on software availability. Even if a disc has a number of angles recorded, these angles may be recorded for specific scenes only.	**—**
The SETUP menu cannot be accessed.	●Select "DVD/CD" as the source. ●Cancel all group, program and random play.	**—** **17**
Cannot add markers.	●You cannot add markers while playing a play list or if the disc's play time doesn't appear on the unit's display.	**—**
There are already markers. RAM	●The unit reads and displays the markers added with a DVD video recorder. You can clear them but reappear when you switch the unit to standby, change the source, or change the disc.	**—**
Marker numbers I added are different when I call them up. RAM	●The unit numbers markers by time so they change when you add and delete them.	**—**
Cannot select random or program play.	●You cannot select random or program play with some DVD-Video.	**—**
Folders deeper than the eighth layer on a data CD are not displayed correctly.	●Folders deeper than the eighth layer are displayed as the eighth layer.	**—**
You have forgotten your ratings password. Reset all the SETUP settings to Factory Preset.	●While stopped and "DVD/CD" is the source, press and hold [■] on the unit and [≧10] on the remote control for about 3 seconds until "Initialized" disappears from the television. Turn the unit off and on again. All settings will return to the default values.	**—**

Sound

No sound. **Distorted sound.**	●Check the connections. ●Turn the volume up. ●Turn muting off. ●Switch off the unit, determine and correct the cause, then switch the unit on. Causes include: –Shorting (bare wires touching) of positive and negative speaker wires. –Using speakers with an impedance lower than that rated for this unit. –Straining of the speakers through excessive volume or power. –Using the unit in a hot environment without proper ventilation.	**7** **—** **29** **—**
Humming heard during play.	●An AC power supply cord or fluorescent light is near the cables. Keep other appliances and cords away from this unit's cables.	**—**

Picture

Picture distorted.	●Some distortion is normal during SEARCH.	**—**
No picture.	●Check the connection. ●Make sure the television is on. ●Ensure the television's video input setting (e.g., VIDEO 1) is correct.	**8** **—** **—**
The picture shown on the television is not normal. (The sides of the picture are cut off, the picture is stretched horizontally, or black bands appear at the top and bottom of the screen.)	●Go to Video in the SETUP menus, and change "TV Aspect" to suit your television. ●Use the television to change the aspect to the correct one. **If your television cannot change the aspect when input is progressive**, try changing 4:3 Aspect with the on-screen menu icons. ●Ensure that the unit is connected directly to the television, and is not connected through a video cassette recorder. ●Connect to the component video (480P) input terminals on a television compatible with this unit's copy guard system. You cannot view progressive video if your television is not compatible. ●Change the size with the variable zoom function. ●The images on PAL system DVD-Audio are compressed for display. They may also appear vertically stretched.	**32** **—** **24** **—** **8** **18** **—**
There is ghosting when progressive output is on.	●Press [PROGRESSIVE OUT] so the indicator goes out. This problem is caused by the editing method or material used on DVD-Video, but should be corrected if you use interlace output.	**12**
Picture quality is poor.	●Check the settings in the On-Screen Menu Icons' Picture Menu.	**24**
The picture on the television disappears or stripes appear on the screen.	●Mobile telephone chargers can cause some disturbance. ●The location and orientation of the antenna are incorrect. If you are using an indoor antenna, change to an outdoor antenna. ●The television antenna wire is too close to the unit. Separate the antenna wire of the television from the unit.	**—** **34** **—**
Menus not displayed correctly.	●Change the zoom ratio to "×1.00". ●With the on-screen icon menus, change "Subtitle Position" to "0" or change "4:3 Aspect" to "Normal".	**18** **24**

Listening to the radio

Noise is heard. **"ST" flickers or doesn't light.** **Sound is distorted.**	●Adjust the position of the FM or AM antenna. ●Use an outdoor antenna.	**—** **34**
A beat sound is heard.	●Turn the television off or separate it from the unit.	**—**
A low hum is heard during AM broadcasts.	●Separate the antenna from other cables and cords.	**—**

Unit displays

The display is dark.	●Press [SHIFT]+[FL DISPLAY] to brighten the display.	**29**
"NO PLAY"	●You inserted a disc the unit cannot play; insert one it can. ●You inserted a blank DVD-RAM.	**5** **—**
"NO DISC"	●You haven't inserted a disc; insert one. ●You haven't inserted the disc correctly; insert it correctly.	**—** **12**
"F61"	●Check and correct the speaker cord connections. If this does not fix the problem, there is a power supply problem. Consult the dealer.	**7**
"DVD U11"	●Disc is dirty. Wipe it clean.	**5**
"ERROR"	●Incorrect operation performed. Read the instructions and try again.	**—**
"DVD H□□" □□ stands for a number.	●Trouble may have occurred. The number following "H" depends on the status of the unit. **Reset procedure:** Press [⏻] to switch the unit to the standby mode and then back to ON. Alternatively, press [⏻] to switch the unit to the standby mode, disconnect the AC power supply cord, and then reconnect it. ●If the service numbers fail to clear, note the service number and contact a qualified service person.	**—** **—**

Television displays

No on-screen display.	●Go to Display in the SETUP menus, and select "On" for "On-Screen Messages".	**32**
On-Screen Menu Icons not displayed or only partially displayed on the television.	●Press [▲, ▼] while the rightmost icon is highlighted to move them down.	**22**
The disc's menu is displayed in a different language.	●Go to Disc in the SETUP menus, and select the preferred language for "Menus".	**32**
"Cannot display group xx, picture xx."	●You are trying to display incompatible pictures.	**—**

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Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.
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Panasonic/Technics Audio Products Limited Warranty

Limited Warranty Coverage
If your product does not work properly because of a defect in materials or workmanship, Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the warrantor") will, for the length of the period indicated on the chart below, which starts with the date of original purchase ("warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

Product or Part Name	Parts	Labor
Audio Products (except items listed below)	One (1) year	One (1) year
All Audio Racks (cabinets)	Thirty (30) days	Not Applicable
Technics Stand Alone Speakers, Subwoofer Speakers	Three (3) years	Three (3) years
USB Reader-Writer, Personal Computer Card Adapters (in exchange for defective item)	One (1) year	Not Applicable
Accessories: Headphones, Cartridges, Microphones, Adapters	Ninety (90) days	Ninety (90) days
Rechargeable Batteries (in exchange for defective item)	Ten (10) days	Not Applicable
SD Memory Cards, Rechargeable Battery Packs (in exchange for defective item)	Ninety (90) days	Not Applicable

During the "Labor" warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must carry-in or mail-in your product during the warranty period. If non-rechargeable batteries are included, they are not warranted. This warranty only applies to products purchased and serviced in the United States or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is". A purchase receipt or other proof of the original purchase date is required for warranty service.

Carry-In or Mail-In Service
For Carry-In or Mail-In Service in the United States call 1-800-211-PANA (1-800-211-7262) or visit Panasonic web site: http://www.panasonic.com
For assistance in Puerto Rico call Panasonic Sales Company (787)-750-4300 or fax (787)-768-2910.

Limited Warranty Limits And Exclusions
This warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or commercial use (such as in a hotel, office, restaurant, or other business), rental use of the product, service by anyone other than a Factory Servicenter or other Authorized Servicer, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE". THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, travel to and from the servicer, loss of media or images, data or other memory content. The items listed are not exclusive, but are for illustration only.) **ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.**

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

PARTS AND SERVICE WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY ARE YOUR RESPONSIBILITY.

Customer Services Directory

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:
1-800-211-PANA (7262), Monday–Friday 9 am–9 pm; Saturday–Sunday 9 am–7 pm, EST.
or send e-mail:
consumerproducts@panasonic.com
For hearing or speech impaired TTY users, TTY: 1-877-833-8855

Web Site: http://www.panasonic.com
You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

Accessory Purchases:

1-800-332-5368 (Customer Orders Only)
For hearing or speech impaired TTY users, TTY: 1-866-605-1277
Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032
(6 am to 5 pm Monday–Friday; 6 am to 10:30 am Saturday; PST)
(Visa, MasterCard, Discover Card, American Express, Check)

Service in Puerto Rico
Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/Factory Servicenter:
Ave. 65 de Infanteria, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985
Phone (787) 750-4300 Fax (787) 768-2910

Listening caution

Selecting fine audio equipment such as the unit you've just purchased is only the start of your musical enjoyment. Now it's time to consider how you can maximize the fun and excitement your equipment offers. This manufacturer and the Electronic Industries Association's Consumer Electronics Group want you to get the most out of your equipment by playing it at a safe level. One that lets the sound come through loud and clear without annoying blaring or distortion—and, most importantly, without affecting your sensitive hearing.

We recommend that you avoid prolonged exposure to excessive noise.

Sound can be deceiving. Over time your hearing "comfort level" adapts to higher volumes of sound. So what sounds "normal" can actually be loud and harmful to your hearing.
Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.
To establish a safe level:
- Start your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, and without distortion.

Once you have established a comfortable sound level:
- Set the dial and leave it there.

Taking a minute to do this now will help to prevent hearing damage or loss in the future. After all, we want you listening for a lifetime.

Product Service

1. **Damage requiring service**—The unit should be serviced by qualified service personnel if:
   (a) The AC power supply cord or AC adaptor has been damaged; or
   (b) Objects or liquids have gotten into the unit; or
   (c) The unit has been exposed to rain; or
   (d) The unit does not operate normally or exhibits a marked change in performance; or
   (e) The unit has been dropped or the cabinet damaged.
2. **Servicing—**Do not attempt to service the unit beyond that described in these operating instructions. Refer all other servicing to authorized servicing personnel.
3. **Replacement parts**—When parts need replacing ensure the servicer uses parts specified by the manufacturer or parts that have the same characteristics as the original parts. Unauthorized substitutes may result in fire, electric shock, or other hazards.
4. **Safety check**—After repairs or service, ask the servicer to perform safety checks to confirm that the unit is in proper working condition.

The servicer will require all components to service your system.
Therefore, should service ever be necessary, be sure to bring the entire system.

Product information

For product information or assistance with product operation:

Contact the Panasonic Customer Call Center at 1-800-211-7262, or e-mail consumerproducts@panasonic.com, or the website (http://www.panasonic.com).

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